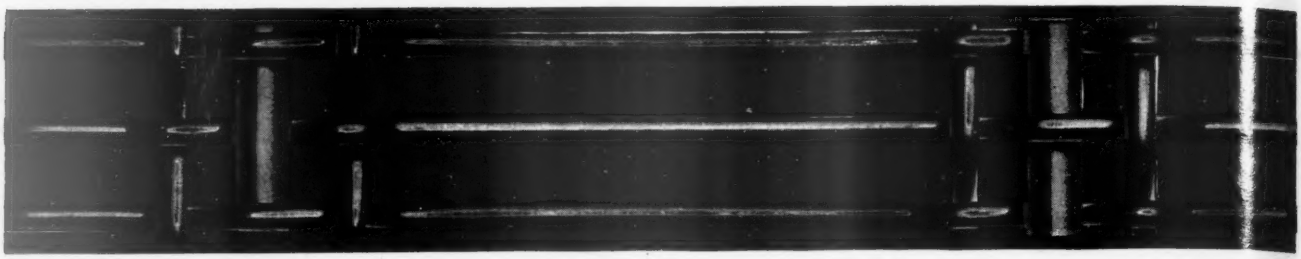
MAR 3 1947

PIT AND QUARRY

FEBRUARY 1947



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Engineered

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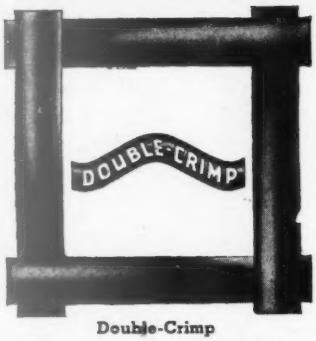
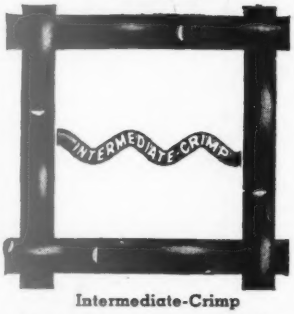
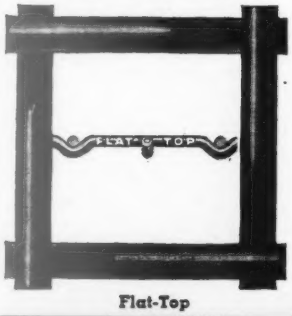


Double-Crimp

Arch-Crimp



Intermediate-Crimp



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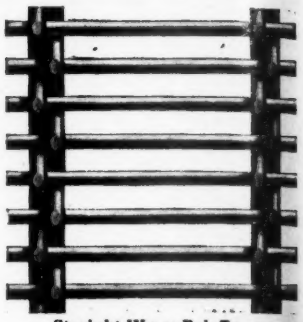
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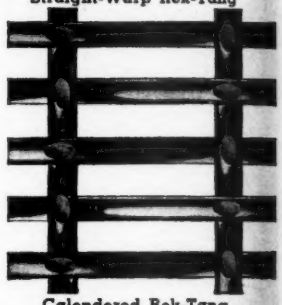
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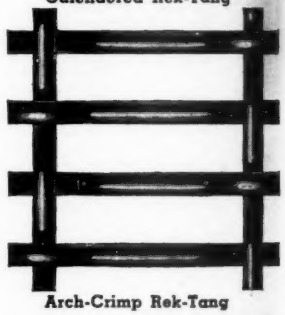
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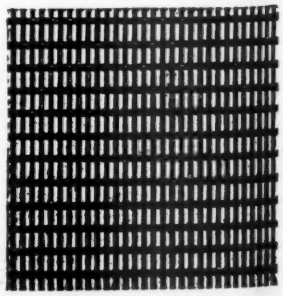
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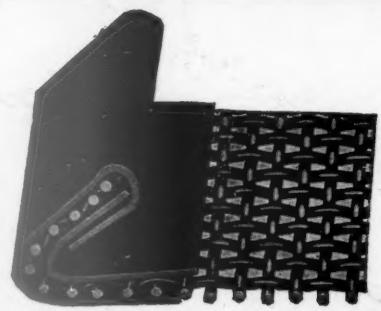

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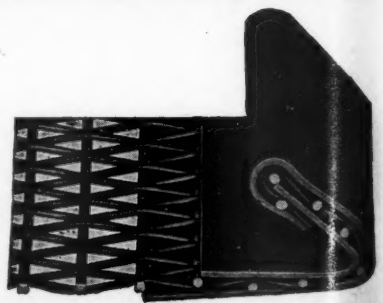

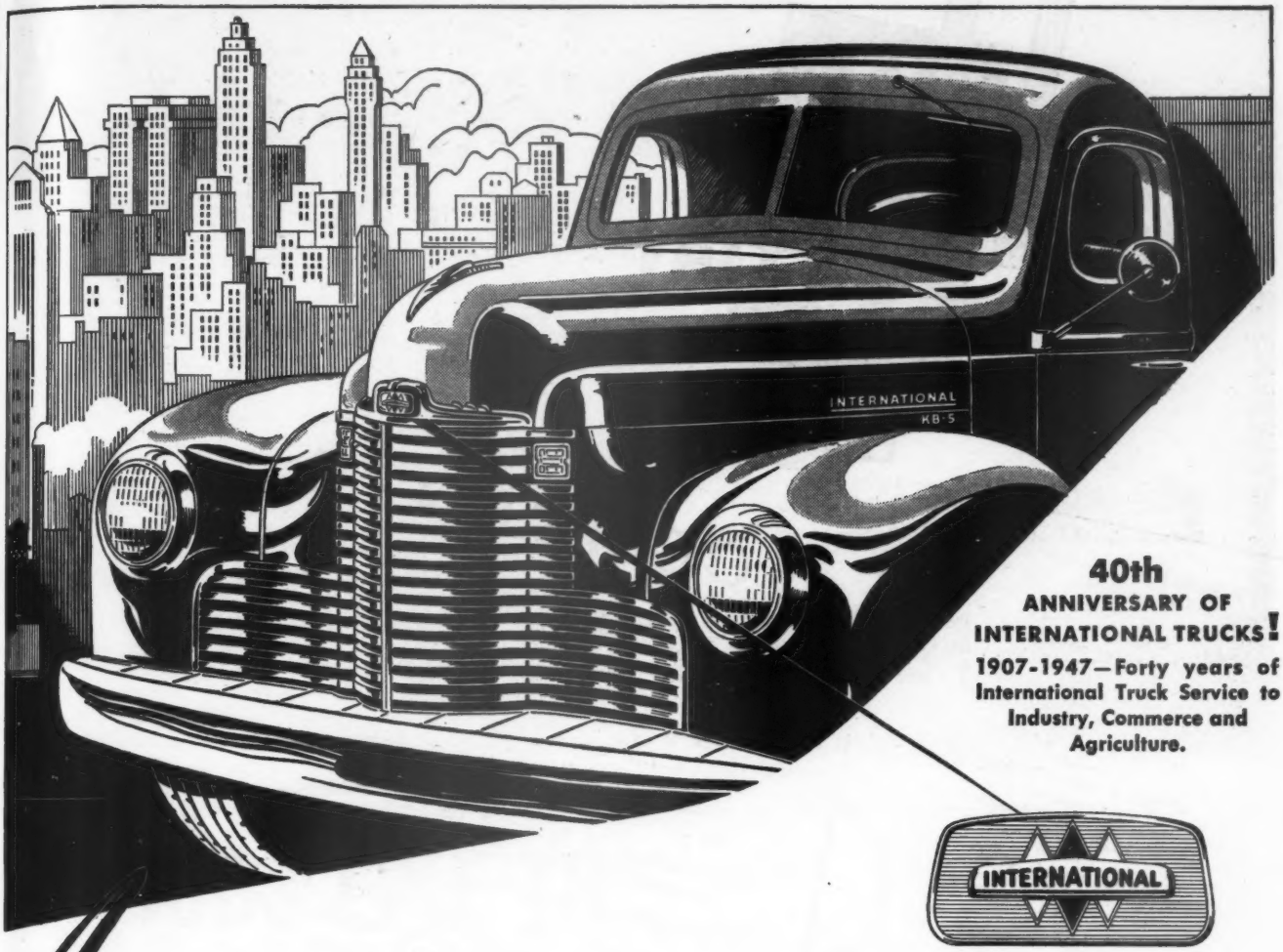

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PIT AND QUARRY

February, 1947

Vol. 39 No. 8

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CONTENTS

Editorial: Prospects Bright for Labor Peace and Continued Prosperity 56
News of the Industry 59
Washington News Letter 68
Erie Modernization Triples Output 69
Producers at N.C.S.A. Convention See 1947 as Peak Production Year 72
Importance of Agstone as Soil Builder Stressed at Division's Second Meeting . 79
Pennsylvania Stone Producers Association Construction and Modernization Program Launched by Pacific Coast Aggregates . . 82
Superior Cement Installs Pulverizers . . . 83
N.A.L.A. Considers Soil Problems 85
Marquette Acquires Tennessee Facilities . . 87
How to Pour Bearings 92
The Lime Plant Operator 94

The Concrete Manufacturer

News of the Industry 96
Gelbman's New Inverted T Concrete Joist . . 127
Illinois Block Producer Perfects Labor-Saving Offbearer 130
Labor Requirements in Production and Distribution of Concrete Masonry Units . . . 131
Indiana Products Firm Expects to Outlast Boom 133
. 136

Personal Mention 102
Obituaries 104
New Machinery 105
Trade Notes 109
Legal Decisions 113
Traffic News 116
Trade Literature 118
Index to Advertisers 182

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PIT AND QUARRY IS INDEXED IN THE ENGINEERING INDEX

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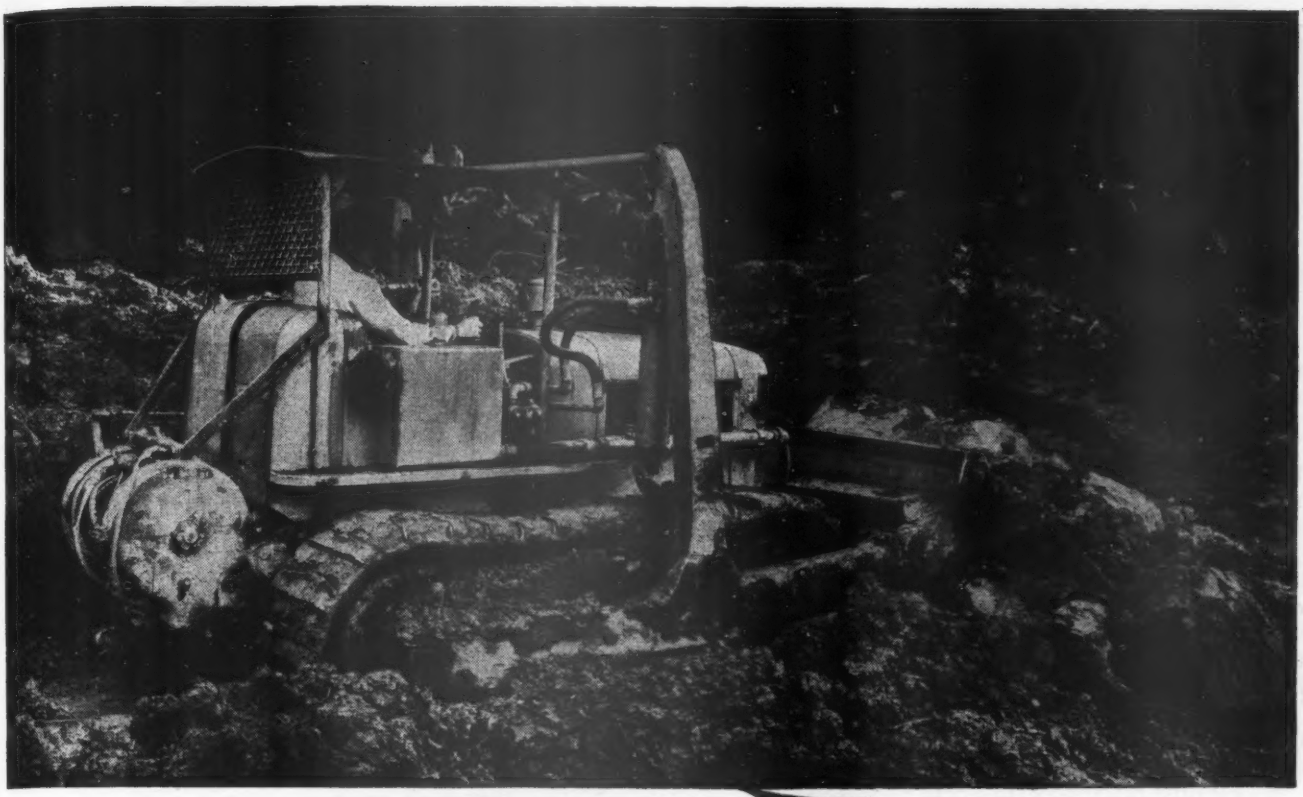

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EDITORIAL

Prospects Bright for Labor Peace and Continued Prosperity

WHAT may prove to be a turning point for the better in labor-management relations was the announcement by President Truman on February 1 of a no-strike agreement between labor and management in the building trades. The president termed this "a significant step forward in industrial relations" and said that this agreement will mean "a higher level of production and greater stability" for the building industry and for the nation.

The Associated General Contractors of America, the largest group of its kind in this country, and the A.F.L. building and construction trades department, covering nearly 2,000,000 construction trades union workers, have agreed to settle all disputes through collective bargaining. This agreement also provides that:

1. There shall be no work stoppages, strikes or lockouts.
2. A national joint conference committee shall be set up in the building and construction industry in which both sides will participate.
3. The committee will work toward settlement of any dispute voluntarily submitted to it by mutual agreement of the parties involved.
4. Flexible machinery, so home builders and all other contractors may use the program merely by naming employer members to a panel in disputes. The unions would use their regular members.

President Truman expressed the hope that the agreement might form the pattern for similar action throughout industry which would bring the country back to a basis of peaceful collective bargaining of labor-management disputes without further disastrous strikes. He was informed by labor and management representatives of the building industry that they had agreed to set up a national joint conference committee similar to the one which has maintained industrial peace in the electrical construction industry for the past 25 years.

A similar plan was proposed February 6 by William Green, president of the A.F.L. at the meeting of the executive council of that body in Miami. The council decided to attempt to persuade the more than 100 national and international unions in the A.F.L. to apply this plan in their respective fields. Mr. Green said that each union would be asked to try to set up arbitration tribunals which would settle disputes as they arise without need for governmental intervention.

The importance of these developments cannot be overemphasized, coming as they do at the start of what promised, even when conditions looked much less favorable, to be the biggest construction year, at least in dollar volume, in the country's history. Many contracts, held up due to uncertainty about future conditions, may now be added to the already impressive 15½ billion dollar total for 1947 new construction recently announced by the Labor Department. A reduction of building costs would further swell this volume.

All this sounds very promising and can become a real move toward labor peace and normal production if the disturbing elements in both management and labor can be suppressed. The greatest danger of a new labor disturbance is in the coal industry where no contract has yet been agreed on between the U.M.W. and the coal mine operators. Even here, however, there is room for optimism as there are indications that the rank and file of coal miners have no desire to again lose billions of dollars in pay as they did in 1946. They are also keenly aware of the public indignation caused by their big strike last year and of the fact that another such incident would inevitably force Congress to pass drastic laws controlling future strikes, a development which would nullify the definite steps already made toward economic accord. Neither labor nor management wants such legislation. Both the coal miners and the U. M. W. officials are also keenly aware of the fact that oil can be used to replace coal for nearly any purpose, and that there is already a steady trend in that direction.

PRESENT indications are that Congress may pass reasonable labor laws which will prohibit nationwide strikes that cripple industry and inflict hardships on the entire nation. It may also decree that unions will be made responsible for their actions as management is now, putting them on an even footing for future bargaining. Business, on the other hand, is anxious to prove that its hands were tied by price control in the past and that it is now able and willing to discuss matters on a reasonable and equal footing. Most important, however, is the growing realization on the part of both labor and management that they have more in common with each other than either has with any outside agency.

It is apparent that in some fields a recession has already gotten under way and this is borne out by a slight increase in unemployment in December, sharp cuts in the prices of luxury items, and some reductions in the prices of staple items. The wholesale prices of food, for example, are down 16 percent from the October peak. In some lines "future" prices are lower than present ones. This recession, however, seems to be more a recession in prices than in volume of production. It may not actually be a recession at all but rather a return from an abnormally-inflated condition to a new normal condition, with new normals much higher than in pre-war years.

The return of free competition has again made apparent the superiority over any other method of matching supply and demand through the medium of flexible prices. As the cost of living drops the real income of each worker increases and his feeling that he must keep increasing his income to keep ahead of upward-spiraling prices will be dispelled.

Returning to the construction picture, the very existence of a construction boom is historically regarded as insurance against any recession developing into a depression. Upon the construction industry, therefore, and upon the producers of and the dealers in construction materials, lies much of the responsibility for what lies ahead. The cost of building a house is about 59 percent over what it was in 1939 in spite of the fact that neither the cost of labor nor the cost of the building materials has increased to that extent, and consumer resistance is growing. Building materials producers in general have held their prices at reasonable levels for sound reasons best known to them which are based on past experience. Labor prices have increased only moderately in the building trades but labor productivity has dropped gradually and is now far below pre-war levels. This and other "hidden costs" in building must be corrected before any substantial cuts can be made in the high cost of construction. A better understanding between labor and management would solve this and many other problems, and it is apparent that such understanding is growing.

WAA Offers Sintering Plant at Baton Rouge As Cement Facility

A $7,200,000 government-owned sintering plant near Baton Rouge, La., adaptable for conversion to the production of cement, is offered for sale by the War Assets Administration. The plant was operated during World War II by the Aluminum Company of America for processing low-grade bauxite ores and thus increasing the recovery of alumina.

Terms are outright sale or lease, with conversion to cement manufacture performed at the lessee's expense and with the provision that the alterations will not prevent restoration of the plant to its original condition within 120 days. The strategic location of these facilities makes possible low-cost water shipment of cement to the Mississippi and Missouri valley regions and general southern areas of the United States and Latin America.

The plant provides unloading, crushing, grinding and sintering facilities; and natural gas, public utility service and ample water are available. Included in the equipment are seven rotary steel kilns, 250 ft. by 9 ft., 6 in., brick-lined and complete with drives, trunnions, stacks, hoods, and equipped with Chessman natural gas burners. The total area of floor space is approximately 125,000 sq. ft.

Written proposals for the purchase or lease of this property must be received at the WAA Office of Real Property, New Orleans, La., not later than 10 a.m. (CST), March 17, 1947, The New Orleans WAA office will furnish specific data and will arrange for inspection of the property. General information may be obtained from the Office of Real Property Disposal, War Assets Administration, Washington 25, D. C.

New Oregon Rock Wool Plant To Run on Non-Stop Schedule

At Dallas, Ore., a new firm, owned by T. T. Leonard and Claude Beebe, has announced plans for the erection of a rock wool plant which will be operated on a 24-hour-a-day schedule.

Construction of a reinforced concrete cupola house has already been begun, and machinery and equipment has been delivered to the plant site. The concern will manufacture its products from limestone taken from a quarry near Dallas.

Henry P. Reid

Coming Events

February 13-16, 1947—Chicago. Annual meeting, Associated Equipment Distributors, Edgewater Beach Hotel.

February 17-20, 1947—Chicago. Annual meeting, American Road Builders Association, Palmer House.

March 3-5, 1947—Los Angeles. 31st annual convention, National Sand & Gravel Association, Biltmore Hotel. (No exhibits.)

March 17-22, 1947—New York. 75th anniversary celebration, American Institute of Mining and Metallurgical Engineers, with World Conference on Mineral Resources, Waldorf-Astoria Hotel.

(For announcements concerning meetings of groups representing the concrete products and ready-mix industries, see page 127.)

Henry P. Reid Appointed To Chief Engineer's Post By Universal Atlas

Henry P. Reid, assistant to the president of the Universal Atlas Cement Company, a United States Steel Corporation subsidiary, has been appointed chief engineer, effective January 16, as announced by Blaine S. Smith, president.

Mr. Reid has been associated with the company for 23 years, having served successively as special engineer, operating engineer and, since 1942, as assistant to the president.

In his engineering and research work for the company's cement plants, Mr. Reid has directed many developments in rotary kiln operations, fuel economy, rock and clinker grinding, as well as dust control and collection. He is the author of "Studies of Fuel Economies in Burning Portland Cement," "Use of Fuel in the Manufacture of Portland Cement," and "Use Classification of Coal in the Portland Cement Industry." He is chairman of the general technical committee of the Portland Cement Association and former chairman of the manufacturing and research committee of the same association. He is a member of the American Society of Mechanical Engineers.

Prior to his affiliation with Universal Atlas in 1924, he was a production engineer with the Bethlehem Shipbuilding Company at Sparrows Point, Md.

Independent Operation of Diamond Cement Plant Told

Officials of the Pacific Coast Cement Company of Seattle, Wash., have announced the firm's resumption of independent operations of the Diamond cement plant in that city on January 1. It will continue to manufacture Diamond brand cement for the markets of the Pacific Northwest and Alaska.

The executive, sales and accounting offices will be located at 3801 E. Marginal Way, Seattle 4.

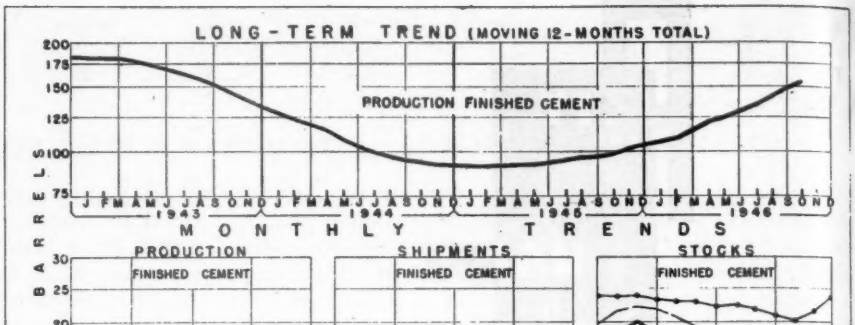
The Sulphur Springs Gypsum Company of Thermopolis, Wyo., resumed production this year with the opening of the Brutch property four miles northwest of Thermopolis. Present plans call for the installation of equipment to increase production by approximately 100 percent.

New Mexican Government Frees Cement Plants From Federal Intervention

One of the first steps taken by the new president of Mexico, Lic. Sr. Don Miguel Aleman V. and the Secretary of National Economy, Sr. Don Antonio Ruiz Galindo, upon taking office on December 1, 1946, was to make a study of the government intervention which had been in effect in all Mexican cement factories since June, 1944.

Intervenors named by the federal government since then have had charge of the production, distribution and price control of cement, but since black market activities in cement were the result of an excess of demand over supply, the situation was aggravated rather than improved. In a decree dated December 14, 1946, the federal government cancelled all previous decrees and withdrew its intervenors from the cement plants, leaving a free market in that commodity. The cement companies, reciprocating, agreed to maintain a price of 95 pesos per metric ton f.o.b. factory for all government works and a price of 105 pesos per ton to distributors f.o.b. factory, allowing the latter a 10 percent profit for distributing cement to the private consumer.

The cement industry has also agreed to do everything in its power to see that its products are not resold at black market prices. It further promised to furnish the federal government with up to 30 percent of its productive capacity when called upon to do so. The free market in cement is being watched carefully by other industries which still have intervenors handling price control and distribution of manufactured products; and it appears likely that if the cement industry, in its co-operation with the federal government, abolishes black market activities in its products, intervention will then be lifted from other industries of Mexico.



Production of finished portland cement during October, 1946, as reported to the U. S. Bureau of Mines, reached 16,410,000 barrels, a figure 48 percent above that reported in October, 1945. Eighty-one percent of capacity was utilized, but production continued above demand and mill stock continued to decline to an October 31 total of 7,301,000 barrels, a figure 41 percent below that reported for October, 1945. Mill shipments reached 17,721,000 barrels in October, 1946, an increase of 33 percent over that reported in the corresponding month of 1945. Clinker production reached 16,240,000 barrels in October, 1946, an increase of 52 percent over that reported for October, 1945.

Demand for cement, as indicated by mill shipments in October, 1946, was higher, in all but two districts in continental United States, than in October, 1945. Increases range from 6 percent in Texas to 92 percent in western Pennsylvania and West Virginia. Shipments also were lower in Puerto Rico in October, 1946, than in the corresponding month of 1945.

The long-term trend in production of finished cement, shown graphically in the accompanying chart, continues its upward trend despite the slightly lower production reported in October, 1946, as compared with the September, 1946, total.

Owens-Illinois Glass Company To Build Silica-Sand Plant

The old Corona silica-sand plant, operated for many years at a deposit south of Corona, Calif., by the late P. J. Weisel, was taken over some time ago by the Owens-Illinois Glass Company, and that concern has completed plans for a modern plant of large capacity. Preliminary work has already started, and it is hoped that the new operation will be in production early in 1948.

The Corona deposit is one of the two in California, the other being the dune deposit on the Monterey Peninsula. Much sand is shipped in from Nevada by California glass makers, and the glass industry on the West Coast is now experiencing considerable expansion, creating a huge demand for sand. Owens-Illinois has done extensive drilling in and around the Corona plant and has acquired additional acreage, so that the known reserves are large and justify the construction of the new plant. The Corona sand, a secondary deposit of decomposed granite, is far from pure and requires much washing and grinding. The Fe_2O_3 content is high, too high to be suitable for making colorless glass.

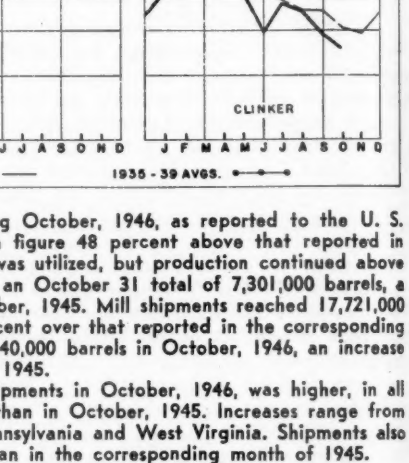
The new plant, however, will be equipped to remove the impurities and reduce the iron content to negligible proportions.

Natl. Safety Council Issues Industrial Safety Manual

After two and a half years of research and preparation, the National Safety Council has published its new Accident Prevention Manual for Industrial Operations, which the council believes is the most comprehensive treatment of the fundamentals of safety available in one volume.

The 544-page manual, containing 400 illustrations, charts and tabulations, is intended as a handy and authoritative source of accident prevention information for safety directors, safety engineers and foremen. Each of the 14 major divisions of the book is preceded by a summarizing index for quick location of general topics, while a 12-page detailed alphabetical index at the back gives access to details.

Further information may be obtained by writing the National Safety Council, 20 North Wacker Drive, Chicago 6, Ill.



According to data collected by the National Lime Association, 43 companies in October, 1946, shipped 178,625 tons of lime (104,441 quicklime; 74,184 hydrate). Reporting companies represent 41.3 percent of the association members' total capacity of record. Based on Pit and Quarry's estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 467,765 tons. Shipments of lime by users for October, 1946, were:

Use	Quicklime (tons)	Hydrate (tons)
Agricultural	1,668	10,394
Building	13,327	36,257
Chemical	89,446	27,533
Total	104,441	74,184

N.S.G.A. and N.R.M.C.A. Convention Programs

An attractive schedule of meetings and a pleasing variety of recreational activities has been planned for members of the National Sand and Gravel Association and the National Ready Mixed Concrete Association, in preparation for the combined annual meetings of these organizations in Los Angeles during the period of March 3 to 7.

The committee wishes to call special attention to the tentative entertainment program arranged for members and their guests.

SUNDAY, MARCH 2
National Sand and Gravel Association
Biltmore Hotel, Los Angeles
Meeting of the executive committee
2:30 p.m.

MONDAY, MARCH 3
Meeting of the board of directors of the National Sand and Gravel Association, 9:30 a.m.
Joint luncheon for the boards of directors of the National Sand and Gravel Association and the National Ready Mixed Concrete Association, 12:30 p.m.
Meeting of the board of directors of the National Ready Mixed Concrete Association, 2:30 p.m.

TUESDAY, MARCH 4
Morning session, 9:30 a.m.
National Sand and Gravel Association
Presiding officer: Richard N. Coolidge
Address of the president, R. N. Coolidge
Report of the executive secretary, Vincent P. Ahearn
Report of the director of engineering, Stanton Walker
Address, "Car Supply in 1947," W. C. Griffin, district manager, operations and maintenance department, Car Service Division, Association of American Railroads
Election of officers
Departure for inspection of sand and gravel plants. (A box luncheon will be served at the first plant visited.)

WEDNESDAY, MARCH 5
Morning session, 9:30 a.m.
National Ready Mixed Concrete Association
Presiding officer: Charles W. Shirey
Address of the president, C. W. Shirey
Report of the executive secretary, Vincent P. Ahearn
Report of the director of engineering, Stanton Walker
Report on the safety contest, Harry F. Thomson and V. P. Ahearn
Report of the committee on truck chassis, H. F. Thomson and Stanton Walker
Joint luncheon of National Sand and Gravel Association and National Ready Mixed Concrete Association, ballroom, 12 m.
Presiding officer: Robert Mitchell
Greetings, Charles H. Purcell, director of public works, State of California.
Address, William M. Jeffers, vice-chairman of board of directors, Union Pacific Railroad

Afternoon session, 2:30 p.m.
National Sand and Gravel Association
National Ready Mixed Concrete Association
Presiding officer: Paul C. Graham
Address, "Legislation by Congress Affecting Labor-Management Relations," Charles A. Horsky, counsel for the two associations
Address, "Group Action by Producers in Development of Area Labor Agreements," Richard W. Lund, counsel, Southern California Rock Products Association
Address, "Current Tax Problems in the Sand Gravel and Ready Mixed Concrete Industries," Robert Ash, tax counsel for the two associations
Reception by manufacturers divisions, ballroom foyer, 5:30-7:30 p.m.

THURSDAY, MARCH 6
Morning session, 9:30 a.m.
National Sand and Gravel Association
National Ready Mixed Concrete Association
Presiding officer: Carl R. Olson
Address, "Durability of Concrete as Affected by Aggregates," Thomas E. Stanton, materials and research engineer, California State Highway Department
Address, "Lightweight Aggregates for Concrete," Raymond E. Davis, professor of civil engineering, University of California
Address, "A Housing Report for 1947," Fritz B. Burns, president, Kaiser Community Homes
Address, "Construction Activity in the Year Ahead," Thomas S. Holden, president, F. W. Dodge Corporation
Afternoon session, 2 p.m.
National Sand and Gravel Association
Presiding officer: Thomas E. Popplewell
Address, "Use of Industry Products for Granular Bases in Highway Construction," Harry D. Jumper, engineer, Consolidated Rock Products Company
Address, "Practices of Western States Using Sand and Gravel in Bituminous Mixtures," Ezra C. Knowlton, vice-president, Utah Sand and Gravel Company
Address, "Municipal Zoning as It Affects Sand and Gravel Operations in Los Angeles County," Clyde P. Harrell Jr., member of Los Angeles bar
Presentation of safety trophies

FRIDAY, MARCH 7
Morning session, 9:30 a.m.
National Ready Mixed Concrete Association
Presiding officer: Frank P. Spratlen Jr.
Address, "Control of Quantity of Entrained Air in Concrete," Stanton Walker
Open forum on merchandising of ready-mixed concrete:
A. Discussion by Robert C. Collins, chairman of committee on merchandising
B. Development of ready-mixed concrete markets through advertising and promotional campaigns, W. D. M. Allan, director of promotion, Portland Cement Association
Inspection trip, 1 p.m.
An inspection of ready-mixed concrete plants in the Los Angeles area. Box luncheon will be served at the first plant inspected

The entertainment program begins with a get-acquainted luncheon for ladies only, to be held at the Jonathan Club on March 4 at 12:30 p.m. Among numerous interesting features scheduled are trips through famed Beverly Hills, home of many movie stars, Pasadena, China Town, and the Griffith observatory and planetarium. The ladies will visit two radio shows. The final attraction is a two-day trip to Palm Springs, via Riverside.

Office of Temporary Controls Replaces Wartime Agencies

By order of President Truman, all emergency governmental agencies have been reorganized for greater efficiency. The Office of Price Administration, the Office of Economic Stabilization, the Civilian Production Administration and the Office of War Mobilization and Reconversion have been abolished, and business formerly administered by them will be carried on under the Office of Temporary Controls. Also eliminated was the Office of Contract Settlement.

In spite of this reorganization and the elimination of priorities, approval of commercial and industrial building is still required. Although non-residential construction will continue to be restricted, permits to erect stores, schools, churches and other community facilities will be granted.

Home Construction Contracts Set New Record in 1946

Investment commitments for residential construction reached an all-time high in the 37 states east of the Rocky Mountains during 1946, it was reported today by F. W. Dodge Corporation.

The total valuation of contracts awarded for residential construction last year in these 37 states was $3,142,102,000, as compared with $2,788,318,000 for 1928, the last previous record-breaking year.

On the basis of floor area of residential building called for in contracts awarded, however, 1946 stood fourth, higher residential floor area totals being shown for 1928 with 568,382,000 square feet, 1925 with 559,499,000, and 1926 with 521,062,000. The total floor area called for in last year's residential contracts was 516,256,000, thus reflecting current higher building costs, the Dodge corporation reported.

1946 residential contracts called for the construction of 446,625 dwelling units distributed as follows: in apartment buildings, 76,372; in one-family dwellings built for owners' occupancy, 50,459; in one-family dwellings built for sale or rent, 294,491; in two-family dwellings, 21,794; and in combination projects, such as stores and apartments, 3,509.

On the basis of dollar volume of awards, 5 percent of last year's residential contracts were for projects classified as publicly owned.

Government restrictions on nonresidential construction and heavy engineering works were instrumental in holding the total volume of this classification of projects to a valuation of $4,347,620,000 to bring the year's value of all building and construction contracts to $7,489,722,000, the second highest total on record.

The Blue Rapids Sand and Gravel Company has acquired an 80-acre tract of land on the Blue River four miles east of Blue Rapids, Kan., as a site for sand and gravel operations. Alva Stryker, plant manager, announced that equipment had been installed on the site for the recovery of material from the river bed.

Through the war years the company furnished material for the construction of air bases at Herington, Topeka, and Salina, Kan.

$42,000,000 Expansion Plan Of U.S. Gypsum Company Under Way at Five Points

A vast expansion program whose total cost is estimated at about $42,000,000 was revealed recently when the United States Gypsum Company filed a registration statement with the Securities and Exchange Commission covering nearly 400,000 shares of new stock to help finance the venture.

The major features of the expansion, stated William L. Keady, U. S. Gypsum president, provide for the future construction of new plants at Alta Vista, Va., and other locations, five plants already under construction, modernization and enlargement of existing facilities, the purchase of two new 10,000-ton cargo ships and the construction of a new loading port on the Bay of Fundy in Nova Scotia. The ships will replace those formerly used for transporting raw gypsum along the Atlantic coast. (These were sunk during World War II.)

Currently under construction are the following: mills at Rahway, N. J., Norfolk, Va., and Los Angeles and plants in the Imperial Valley, Calif., and Sigurd, Utah. (See PIT AND QUARRY, December, 1946, page 60.)

It was stated that of the total amount to be invested, about 50 percent represents the estimated cost of that portion of the program now under way.

Weekly Non-Residential Rate Raised to $50,000,000 by CPA

The Civilian Production administration is raising to $50,000,000 its weekly rate of approvals for non-residential building, according to a recent announcement made by Major General Philip B. Fleming, Temporary Controls Administrator.

It was explained that the change was necessitated by increased construction costs and by the fact that without the increased rate it would be impossible, in some cases, to approve facilities required for vital community needs where new housing developments are being promoted. The CPA is also liberalizing its treatment of applications for certain types of structural frames and prefabricated steel structures in areas where no shortages of critical materials exists.

Plastocement de Puebla, S. A., Begins Expansion Project

Some months ago in Puebla, state of Puebla, Mexico, construction began on a new masonry cement plant having a capacity of 5,000 metric tons monthly, to replace a smaller experimental plant with a total monthly production of 1,500 metric tons. The new company, Plastocement de Puebla, S. A., is a subsidiary of Cementos Atoyac, S. A., also located in Puebla.

Machinery and equipment being installed in the new plant includes the following: crushers; a 7-ft., 6-in. and 6-ft., 9-in. by 150-ft. rotary kiln; a 6- by 60-ft. rotary cooler; a special type of hydrating system to which lime is fed from the cooler and siliceous material from a special bin; a 5-ft., 6-in. by 22-ft. tube mill; and accessory elevating and conveying equipment. The masonry cement will be produced under license from the Cement Process Corporation of Delaware.

Another subsidiary of Cementos Atoyac, S. A., Plastocement, S. A., located at San Pedro de los Pinos, D. F., at present produces 6,000 metric tons of Plastocement monthly for the Mexico City market. This plant will undergo changes and additions which will increase its capacity to 10,000 metric tons per month.

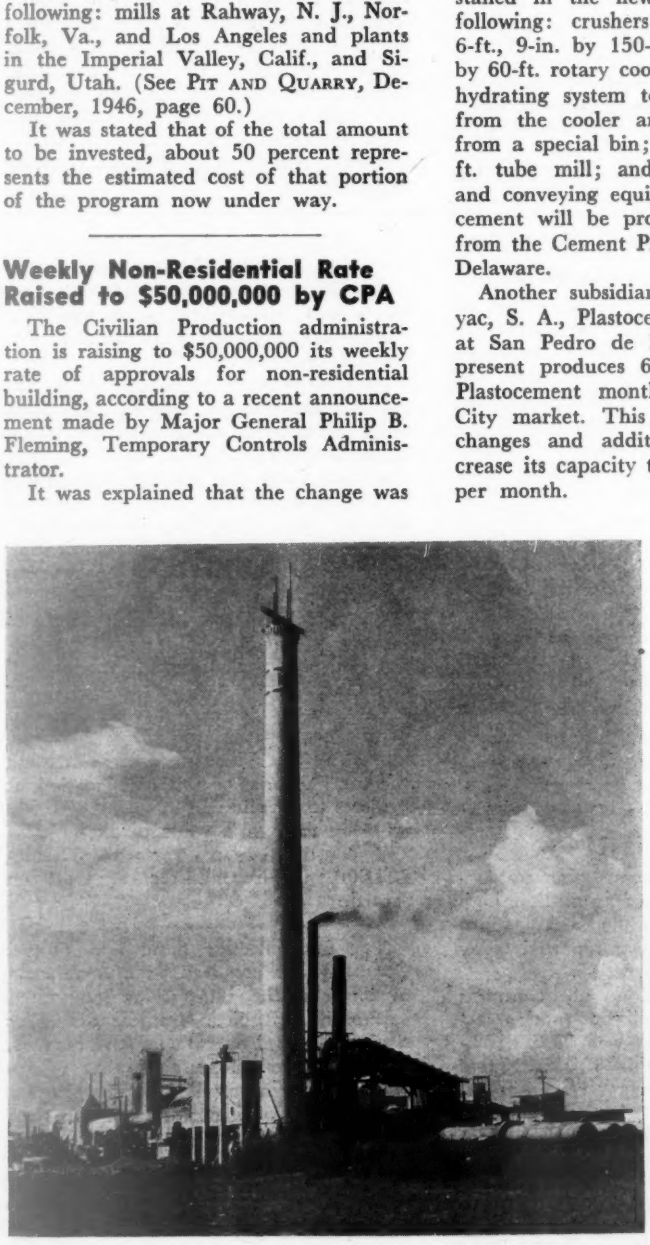
Dodge Report Shows Drop In November Building— But High 11-Month Total

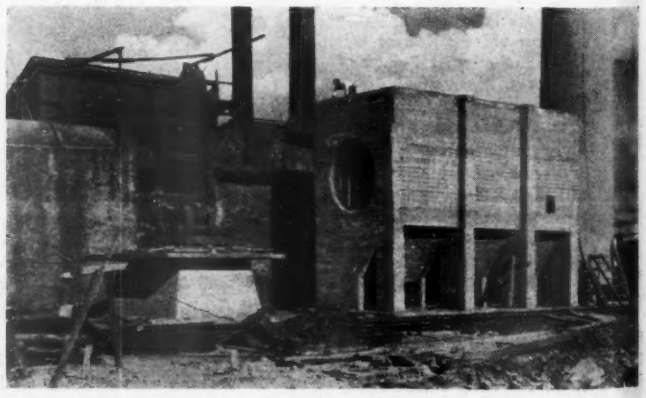
Investment commitments for construction declined 13 percent in November from the dollar volume of contracts awarded in October in the 37 states east of the Rocky Mountains, it was reported by F. W. Dodge Corporation. November construction contracts totaled $503,745,000, as against $573,206,000 in October.

The dollar volume of residential building contracts dropped 6 percent from a total of $235,068,000 in October to $221,113,000 in November. The Dodge corporation reported that 30,520 dwelling units were called for in the plans and specifications attending contracts awarded in November, bringing the cumulative contract total of dwelling units for the first eleven months of last year in the Eastern states to 417,708, with a total direct investment value of $2,948,737,000. This is the highest residential dollar contract total on record for 11 months of a year, the corporation reported. Five per cent of the poration reported. Five percent of the months was for projects classified as publicly owned.

Residential contract gains, despite the over-all decline in the area east of the Rockies, were reported in November as compared with October in New England, metropolitan New York and northern New Jersey, the Middle Atlantic region, western Pennsylvania and West Virginia, Texas, western Missouri, Kansas, Nebraska and Oklahoma.

Nonresidential building contract volume declined from $225,355,000 in October to $160,871,000 in November, while heavy engineering construction contract volume increased from $112,783,000 to $121,761,000. Total contract volume for the first 11 months in the 37 Eastern states was $7,032,444,000, which figure has been exceeded only once before in an 11-month period and that in 1942, when war construction was at a peak and the volume reached $7,546,345,000.





• Left: Scene at the site of Plastocement de Puebla, S. A., during the construction of the plant. The chimney and dustchamber for the new kiln are in the foreground. At the left center is the old kiln which the new facilities will replace. The plant is located at Puebla, state of Puebla, Mexico.

• Below: A closeup view of the new kiln dustchamber and the kiln base.

Two-Purpose Trucks Speed Fuel Oil Transport to Mexican Cement Plant

Cementos Atoyac, S. A., of Puebla, state of Puebla, Mexico, some months ago acquired a fleet of 10-ton Mack diesel trucks to keep its plant supplied with sufficient fuel oil to maintain normal operations.

The company owns 20 railway oil tank cars with a capacity of 8,000 to 10,000 gallons each. However, since the close of the war, the normal haulage of fuel oil has been disrupted because preference has been given to foodstuffs, machinery, and other vital supplies. Seaborne cargoes from the United States, Canada, England and the Scandinavian countries often pile up by the thousands of tons at Veracruz, since the limited service of the Mexican Railway and the narrow-gage Interoceanico Railway connecting Veracruz with Puebla and Mexico City can not accommodate the volume of shipments. This condition prevails despite the hundreds of trucks which daily haul hundreds of tons of freight inland. As it frequently required as long as 30 days for an oil tank car to make the round trip between the plant at Puebla and Veracruz, Atoyac operations were seriously hampered.

The acquisition of the truck fleet was seen as the solution of the transportation problem. The trucks load 10,000 liters of fuel oil at Veracruz and climb from sea level over a distance of 210 miles to an elevation of 7,000 feet to the Atoyac plant in Puebla.

At first the trucks made the trip from Puebla to Veracruz without load; but this one-way haul proved to be very expensive. Atoyac officials therefore had their trucks redesigned so that they could haul 9,000 kilos of cement to the Jalapa and Veracruz markets on the trip down. After unloading the cement, they load up with fuel oil. In this way the cost of transporting the fuel oil has been materially reduced, although it still remains more than double the freight rate over the railways. The accompanying illustrations show the peculiar design of the oil-cement hauling trucks.

• One of the double-purpose trucks loading up with cement at the Atoyac plant. Sacks are simply piled along the sides and on the top of the big oil tank.

• A loaded truck, bearing 9,000 kilograms of sacked cement, is shown ready to travel to Veracruz via Jalapa. At these two points it will discharge its load to agents. For the return trip it will take on 10,000 liters of fuel oil. Atoyac trucks make the round trip in 24 hours, exclusive of repairs and servicing.

E. M. Hastings Named Head Of Civil Engineers Group

Edgar M. Hastings of Richmond, Va., chief engineer of the Richmond, Fredericksburg and Potomac Railroad Company, has been elected president of the American Society of Civil Engineers for the 1947 term, according to an announcement released by Colonel W. N. Carey, executive secretary of the organization.

Mr. Hastings took office at the 94th annual meeting of the society, which was held recently in New York. Two new vice-presidents, Gail A. Hathaway and Professor Ralph B. Wiley, and several new directors also were inducted at the meeting.

Sixth Ohio Lime Conference Well Attended at Columbus

Approximately 300 persons attended the sixth annual Ohio Lime Conference, which was held on January 3 at Columbus under the auspices of the Ohio State University department of agronomy and the Ohio agricultural experiment station, with the lime industry co-operating.

Speakers made the following major points: that Ohio soils had lost about one-third of their organic matter supply; that this condition, however, could be remedied by adding plant nutrients, by proper liming, by restoring the organic matter supply and by improving the soil tilth; that liming the soil pays well and acts as a balance to insure a well-proportioned supply of plant nutrients.

It was revealed that Ohio farmers in 1946 used about 2,000,000 tons of agricultural limestone equivalent, an amount which representatives of the Production and Marketing Administration at the conference said should have been doubled.

Wolverine Executive Sees All-Time High for Cement Production in 1947

Roger Gleason, president of the Wolverine Portland Cement Company of Kalamazoo, Mich., anticipates an increasing demand for cement in the United States during 1947 which may call for shipments totaling 200,000,000 barrels. He bases this estimate upon the rapidly expanding market which has been developing throughout the last year.

So pressing has been the demand upon Wolverine facilities that the company has increased the number of its employees by nearly 300 percent during the last 18 months; and Mr. Gleason expects that the personnel at both the Quincy and Coldwater plants will have to be increased in the immediate future.

In order to keep on hand enough cement to satisfy the unprecedented demand, the Coldwater plant has been open throughout this winter, a most unusual circumstance, due to the difficulty of operating in sub-freezing temperatures. This plant, which was closed during the entire period of World War II, was reopened within two weeks after V-J Day. It is now staffed chiefly with veterans, most of whom were inexperienced in cement mill work.

The Quincy mill continued to operate throughout the war, and thus a nucleus of experienced men was kept who later helped to train post-war workers new to the industry.

Monarch Cement Co. Plans Long-Range Modernization

According to an announcement released by Walter H. Wulf, president of the Monarch Cement Company of Humboldt, Kan., this firm has completed plans to carry out a large-scale rebuilding program for its plant, to extend over several years. Construction is expected to begin this summer.

The machine shops will be among the first sections to be remodeled. One new rotary kiln to be installed will treble the present capacity of those now in use. Mr. Wulf stated that he expected the plant to remain in operation throughout the period of remodeling.

H. T. Gracely Named New President-Manager of Marion Power Shovel Co.

The election of Harvey T. Gracely as president and general manager of Marion Power Shovel Company has been announced by E. G. Diefenbach of New York City, chairman of the board.

Mr. Gracely assumed his new duties

Harvey T. Gracely

immediately upon his election at a meeting of the board in New York on January 6. He brings to his new position a wide background of engineering and selling in the power shovel industry and a broad acquaintance in the industries served by the company.

His first association with the company was in 1901, when he accepted employment in one of the factory stock rooms. Later he was transferred to engine subassembly work and shortly afterward he went into the engineering department as a draftsman. Three years later he started devoting his attention to designing and detailing floating dipper dredges, a product which had an extensive market at that time. He soon became chief of the dipper dredge section of the engineering department.

In 1914 he resigned and, with one of the company's service men, purchased some Marion machines and engaged in drainage contract work in Mississippi. Upon the completion of this work in the summer of 1916, which was in the midst of World War I, they sold their equipment and Mr. Gracely returned to enter the civilian branch of the Ordnance Department, with headquarters at Cleveland. Continuing in this position for three years, he supervised production of tank armament at two plants in Bucyrus, O., and one each in Fostoria, Urbana and Columbus, O.

In 1919 Mr. Gracely returned to Marion as advertising manager. When Arthur F. King became director of sales in 1923, he transferred Mr. Gracely to the position of assistant sales manager and about a year later Mr. Gracely became general sales manager, a position he retained for 14 years.

In April of 1944, Mr. Gracely was elected a member of the board of directors and a year later was made vice-president. His duties in the last few years have made him thoroughly conversant with administrative problems, rounding out his qualifications for the presidency and general managership. Mr. Gracely succeeds M. E. Montrose as president and general manager.

Fire Damage Estimated over $15,000 at Cincinnati Plant

A fire resulting in damage estimated at $15,000 to $20,000 threatened the complete destruction of the Ohio Gravel Company's plant at Cincinnati, O., on January 4. Machinery and a portion of the bins and the conveyor system were destroyed, but the 80-foot tipple, containing 800 tons of sand and gravel, was pronounced safe.

Because the fire occurred on Saturday afternoon, no employees were at the plant except E. P. Holwadel, sales manager, who was at work in the office when notified of the fire by a passerby.

Texas Gulf Sulphur Co. To Build $2,000,000 Plant

The Texas Gulf Sulphur Company of New York has announced that a contract for the construction of its new $2,000,000 unit, to be built 16 miles south of Liberty, Tex., was awarded to the Consolidated Steel Corporation of Orange, Tex.

The new facilities will include a power plant, office buildings, machine shops and other buildings. The plant will be for the purpose of mining and processing sulphur exclusively. It is expected to reach capacity operation by 1949.

Fire recently destroyed the plant of the Durland Sand Company at West Wyoming, Pa. Denton Durland, president of the company, estimated the damage at $75,000 which was partially covered by insurance. Fire apparatus from five communities was required to fight the blaze, which was required at 11 p.m. and was brought under control at 4:30 the following morning.

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ODT Director Predicts Car Shortage Will Cut U. S. Production Capacity

J. Monroe Johnson, director of the Office of Defense Transportation, stated recently that the production capacity of the United States is seriously threatened by the current railroad car shortage. He declared that during December, 1946, only 2,800 freight cars were built, whereas from 5,000 to 7,000 per month are actually needed.

Of the 1,700,000 cars now in this country, Mr. Johnson, said, 54 percent are more than 25 years old. He added that although the railroads need 300,000 new cars, only 68,000 are on order.

The ODT chief indicated that although many defense controls are being removed, President Truman still has the right to allocate steel for cars. He suggested that a possible solution for the transportation problem might be the appointment of a (federal) Secretary of Transportation.

Coplay to Install Collector To End Dust Nuisance

The Coplay Cement Manufacturing Co., Coplay, Pa., has placed an order with the Buell Engineering Co., Inc., N. Y., for the installation of Buell Van Tongeren cement dust collection equipment in its mill. The installation is expected to require almost a year.

Coplay has already made repairs and improvements in its present collecting system in an attempt to remove the dust nuisance which brought recent complaints from residents of Northampton borough. The new equipment is expected to have an operating efficiency in excess of 90 percent.

Aluminum Ore Co. Buys Eagle Fluorspar Properties

The Eagle Fluorspar Company, owned and operated by Laurence F. Hearne of Marion, Ky., has been purchased by the Aluminum Ore Company, according to Walter S. Skeels, works manager of the Aluminum Ore Company. The Eagle Company Properties, situated in Crittenden and Livingston counties, include the Babb, Watson, and Cullen mines.

The Reconstruction Finance Corporation has shut down the Monolith-Portland Midwest Company alumina plant at Laramie, Wyo., upon recommendation of the Office of War Mobilization and Reconversion. The plant was built by the government during the war, but was completed only recently. The cement company never had an opportunity to operate it.

Work will be begun in the near future on the construction of a $400,000 extension of the Montreal plant of Gypsum, Lime & Alabastine, Canada, Ltd. The building, which will be 400 ft. by 80 ft. in size, will be used for rock storage.

Accelerated Car Building Program Planned by CPA To End Critical Shortage

A 1947 freight car building program, designed to double current output, was announced by the Civilian Production Administration recently after a meeting with the newly-formed Freight Car Builders Industry Advisory Committee. Current production is approximately 3,500 cars a month. The freight car shortage was estimated as high as 30,000 cars daily at the end of 1946.

Because the CPA's priority powers will cease on March 31, 1947 (except for building materials), the accelerated production program will be built around a plan of voluntary co-operation between the car industry and the suppliers of freight car components. The CPA, however, has exercised its priority powers to help the car building industry to obtain surplus materials. Car builders may apply to the CPA for directives on War Assets Administration to obtain materials from surplus stocks.

Auburn Lime Products Co. Acquired by New Corporation

A group of California men recently formed a new corporation and purchased the Auburn Lime Products Company of Auburn, Calif. State Senator Fred Weybret is president, A. C. Hughes is vice-president and John J. Taylor secretary. Directors include L. K. Lacey and C. L. Smith.

Deposits at the Auburn site have been estimated to contain more than 2,000,000 tons of 98 percent pure calcium, which the new corporation plans to develop into one of the leading Western limestone sources.

After completion of modernization now under way and proposed for the near future, the management expects to turn out 3,000 tons of lime products each month. The expansion program being outlined will call for the expenditure of about $350,000 in new equipment and other facilities. George L. Kelly, former operating superintendent of the Permanente Metals lime operations near Salinas, Calif., has been named plant manager.

Idaho Phosphate Rock Output Now 1,000,000 Tons per Year

Phosphate rock is now being mined in Idaho at the rate of 1,000,000 tons a year, according to a statement by J. B. Simplot, whose company is one of several operating in Idaho phosphate beds.

"Idaho's phosphate fertilizer industry, started by the Anaconda Copper Co., back in the 1920's with its mine at Conda, got a running start on increased production nearly a year before V-J Day and is now operating at full blast," said Mr. Simplot. "Our Pocatello plant is producing 500 to 700 tons of super phosphate fertilizer per day under present schedules, and we already have made plans to exand its capacity materially."

When the J. R. Simplot Co. was operating the world's largest potato and onion dehydrator at Caldwell in 1943 to supply wartime needs, it became apparent that extraordinary farm production would be dependent upon restoring farm fertility, Mr. Simplot explained. The following year the company's phosphate plant was put into operation at Pocatello.

The San Francisco Chemical Company is operating mines at Montpelier.

Midwest Power Conference Schedules Chicago Meeting

The Midwest Power Conference, annually the largest meeting of its kind in the nation, will be held on March 31, April 1 and 2, with headquarters in the Palmer House at Chicago.

Professor Stanton E. Winston, director of the evening division at Illinois Institute of Technology, will serve as conference director for the eighth consecutive year. Illinois Tech will again sponsor the meeting in co-operation with nine Midwestern colleges and universities and seven engineering societies.

The 1946 Midwest Power Conference attracted an attendance of approximately 2,500 persons to hear more than 70 outstanding speakers from all parts of the United States discuss recent and important developments in the field of power.

Cleveland Rock Wool Co. Fire Causes $150,000 Loss

A fire which raged through the plant of the Cleveland Rock Wool Company at Euclid, Ohio, recently caused damage estimated at $150,000. The flames spread so rapidly through the building that the watchman, who was turning in an alarm, and seven other workers barely escaped in time. The cause of the fire has not been determined.

British Asbestos Concern Forms New Subsidiary to Operate Canadian Plant

Turner & Newall, Ltd., owners of asbestos mines in Canada and South Africa, whose home office is at Rochdale, England, recently decided to erect and operate in Montreal, Canada, a plant for the manufacture of asbestos products.

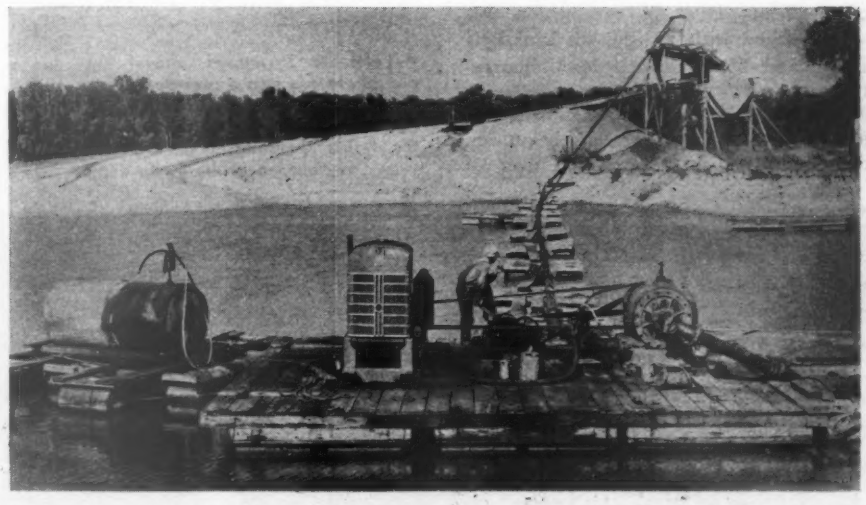
A new company, Turner & Newall (Canada), Ltd., has been formed for this new project. A building site has been acquired in Montreal, and construction will begin as soon as possible. The estimated cost of initial construction is approximately $4,000,000; and the total cost of the undertaking will probably reach $7,000,000. Several hundred persons will be employed in the plant.

The parent company, through its subsidiaries, owns and operates 12 plants in the United Kingdom, three in India and three in the United States. Its Canadian asbestos property, the Bell mine, is located at Thetford Mines, Quebec.

Universal Atlas Plants Cited for Safety Records

Four plants of the Universal Atlas Cement Company, United States Steel Corporation subsidiary, made perfect safety records in 1946. They are the plants at Northampton, Pa., Leeds, Ala., Hannibal, Mo., and Duluth, Minn. Each of them accordingly is eligible for reaward of the Portland Cement Association safety trophy for operating a calendar year without a lost-time accident.

The Buffalo Gravel Corporation of Buffalo, N. Y., has announced a change of address. The company's new location is at 111 Great Arrow Avenue.



• A mud-hog with floating power is the efficient device used by the Paul Christensen Sand & Gravel Co., in their pit near Fremont, Neb. The floating power is a raft-mounted General Motors diesel engine driving a 6-inch centrifugal pump to raise a mixture of water and sand through 6-inch pipe from depths of 25 to 50 feet and force it through 180 feet of pipe (also on rafts) to the top of a sand hopper on the beach. Under force, the mixture screens itself, trapping the sand and gravel in the hopper. The engine also provides power for the winch, which raises and lowers the mud-hog on the pit bottom.

• The General Motors Series 71 6-cylinder diesel engine used in this operation is Number 167—one of the first built by the Detroit Diesel Engine Division. It first saw service in a truck, until purchased by Mr. Christensen in 1941, overhauled and put to its present use.

Sevenfold Capacity Boost Goal at Georgia Firm's New $150,000 Plant

The Armena Lime Mine and Farms, Inc., located 11 miles northwest of Albany, Ga., is currently building a $150,000 limestone crushing plant which is expected to be in operation in the immediate future. The company was formerly known as Dermot Shemwell & Son.

When completed, the new plant will have a capacity of 1,000 tons per day, as contrasted with the former output of 150 tons per day. The Seaboard Air Line Railroad is building a spur track and siding to the plant. Officials have set for their 1947 goal the production of 150,000 tons of processed material. In addition to agricultural limestone, the new plant will turn out "chicken grits" and "calcium dust" for agricultural purposes.

Dermot Shemwell Sr. is the president of the concern; Dooley Cubertson is vice-president and treasurer; and Wade C. companies.

Trinity-Florida-Signal Mt. Merger Plan Contemplated

The directors of the Trinity Portland Cement Company, Dallas, Tex., the Signal Mountain Portland Cement Company, Chattanooga, Tenn., and the Florida Portland Cement Company of Tampa recently announced plans for the merger of the three firms into a single company, to be known as the General Portland Cement Company.

The consummation of this proposal, however, will be contingent upon the approval of the stockholders of the three companies.

Find Rich Phosphate Beds Under 40-Foot Overburden

At the site of the San Francisco Chemical Company's phosphate mining operations near Montpelier, Ida., stripping of a 40-foot layer of overburden was accomplished with 2¼-cu.-yd. Link-Belt shovel and Model F rear-dump quarry-type trucks.

After the overburden had been removed, open pit mining was begun on the phosphate deposits, which average six feet in depth. The beds, located on the 515-acre Waterloo Mine property, are said to contain sufficient phosphate for five to seven years' operation by open pit mining.

The overburden weighs about 2,850 pounds per cubic yard and consists of shale and limestone. The ore is hauled approximately seven miles to the processing plant in Montpelier, which is in charge of D. L. King, superintendent. The San Francisco Chemical Company is a subsidiary of Mountain Copper Company, Ltd., of San Francisco.

Ban on Pumicite Plant Ruled Illegal by Judge

A California superior court judge recently ruled as unconstitutional a Fresno County ordinance to compel the removal of the California Industrial Minerals Company's pumicite plant at Friant, Calif., at least two miles out of the community. Judge Ernest Klette issued a preliminary injunction forbidding the county to enforce its ordinance. He based his decision upon the fact that the measure would deprive Forrest Taylor, owner of the plant, of his property. He stated that the proper procedure would be by prosecution under the criminal nuisance law.

Complaints of the residents of Friant that the pumicite operations constituted a dust nuisance led to the action of the Fresno County board of supervisors.

The British Columbia Cement Company, Ltd., of Vancouver, B. C., is considering the erection of a plant and townsite at Horne Lake, B. C., at the cost of several million dollars. Preparations are now under way for the townsite. Between 200 and 250 men will be needed to staff the big plant.

Armour & Co. to Establish M.I.T. Research Program In Mineral Flotation

The establishment by Armour and Company of a fund of $12,000 for a graduate research program in the fundamentals of mineral flotation at the Massachusetts Institute of Technology has been announced.

A. M. Gaudin, Richards professor of Mineral Dressing at M.I.T., who will direct the program, stated that the rapid rate of depletion of world mineral resources necessitates the obtaining of metals, nonmetallic minerals and fuels from less and less favored raw materials. Accordingly, the new program is aimed at a better understanding of the fundamentals of flotation, the key process in the recovery of minerals from lean ores.

Permanente Scores High In Safe Driving Contest

Fleet drivers of the Henry J. Kaiser-managed Permanente Cement Company have averaged less than one accident for each 100,000 vehicle miles traveled during July, August and September, according to those in charge of the Fleet Safety Contest sponsored by the San Francisco chapter of the National Safety Contest.

L. R. Flicker, Permanente safety engineer, today revealed that the cement company's accident rate is 0.72 as compared with an average rate of 7.69 for approximately 100 fleets entered in the "inter-city" bracket of the contest.

Flicker said the record of Permanente drivers was marred by only two minor accidents during the first three months of the six-month contest.

The State Cement Plant at Rapid City, S. D., has granted wage increases of 10 to 17 percent for all hourly employees; was authorized following a summer-long investigation of wage scales in Midwestern cement plants, according to Frank Gardner, production manager. The wage boost raises the basic pay for common labor from 70 to 82 cents per hour.

• Left: A 2¼-cu.-yd. shovel here loads phosphate ore into a rear-dump truck at the San Francisco Chemical Company's operations near Montpelier, Ida. Right: One of the trucks dumping a full 15-ton load of overburden at the waste dump.

International Harvester Presents New Truck Models at Ft. Wayne

Nearly 100 members of the press and a large group of industrial guests gathered at Fort Wayne, Ind., on January 17 to see the presentation of the new 1947 line of International Harvester Company trucks.

Twelve of the 15 new "KB" basic models were shown, together with the IHC trucks of the vintages 1907, 1917, 1927 and 1937. In addition, one of the six new "W" or western models was shown.

The preview of the 1947 line also marked the fortieth anniversary of the International Harvester Company as a motor truck manufacturer.

W. C. Schumacher, general manager, Motor Truck Division, spoke briefly in welcome, and turned the meeting over to W. K. Perkins, manager of sales, Motor Truck Division. As master of ceremonies, Mr. Perkins reviewed the need for truck specialization to meet the nation's hauling needs. He said that the International Harvester Co. was introducing new models now for two reasons: first, to provide operators with trucks of improved performance; and second, to provide operators with more attractive trucks in a critical business year. He stressed the fact that production had not been stopped in the changeover of models. The manufacturing department broke all previous production records in many of the weeks just preceding the day on which production of the new models was started. The production record was broken again on January 17, when 129 medium and 51 heavy-duty trucks were produced at the Fort Wayne works.

At a signal from Mr. Perkins, the new models passed by the audience, one at a time. The first truck to appear was the 1907 IHC auto wagon, which was powered by a two-cylinder engine, and ran on 46-inch solid-tired buggy wheels. This chain-driven vehicle ran out onto the floor under its own power, and was followed by the 1917, 1927 and 1937 models. These last three trucks were borrowed from operators in the vicinity of Fort Wayne, and are still in daily service. Twelve new 1947 "KB" models followed, with one of the new "W" Western models, the W-3042-H, bringing up the rear.

These trucks represented the new line, which has gross vehicle weight ratings ranging from 4,400 to 90,000 pounds. Ninety-five new features or mechanical

By ROBERT W. SPAKE

improvements are incorporated in the new line, and it is these new features that actually brought about the 1947 line, since International does not bring out new models each year.

Products of all the International Harvester plants were represented in the display. The models KB-1 through KB-5 were built in the Springfield, O., plant. KB-5 through KBR-12 were built at the Fort Wayne works, and the W-3042-H was built at Emeryville, Calif. The engines, except for a few of the heavier models, were built at the company's Indianapolis, Inc., engine works.

Mr. Perkins called attention to the fact that while there are 21 "basic models" in the 1947 line, job adaptations and conversions of these models produce more than 1,000 different transport units.

Illustrated are the KB-7 and KBR-11 models. The KB-7 shown has a three-way hoist, and 3-cu.-yd. dump body. Before loading, the body is turned to the right, left or rear, depending upon where the load is to be dumped. It is possible to dump the load in one place, or to spread the load along the shoulders while the truck is in motion, a feature which makes this body of especial use and interest on city, county and state highway jobs, where heavy traffic is a factor.

The KB-7 is powered by the 269-cu.-in. displacement Blue Diamond engine, has a gross vehicle weight rating of from 16,500 to 21,500 pounds, and is available in four wheelbase sizes from 134 to 176 inches.

The KBR-11, shown with a 6-cu.-yd. body and a cab protector, is powered by a 148-hp. Red Diamond engine. Air brakes are standard equipment on this model, which is available in four wheelbase sizes, from 149 to 197 inches. The KB-8, not shown, can be supplied with a concrete mixer body.

Later in the morning the guests heard talks which covered other phases of the International Harvester Company's truck business. These talks, with supplementary exhibits, demonstrated the IHC procedures and methods for adapting the basic truck models into trucks that are engineered for the jobs they are to do; the company's service training programs for dealers' and operators' mechanics; its parts and accessories merchandising and packaging program; and the building for dealers, or the "base of operations."

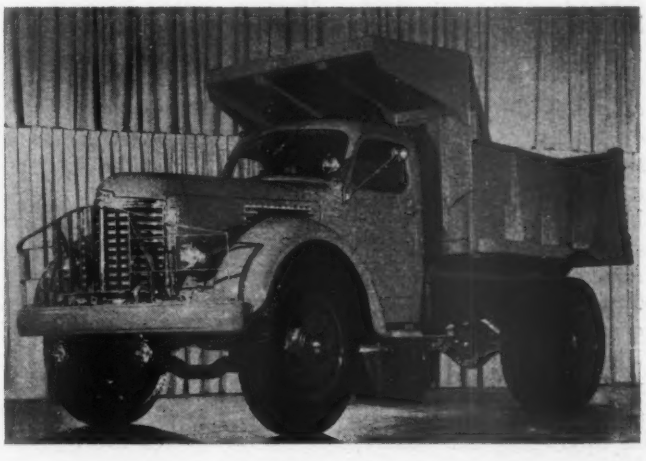
A brief address by P. V. Moulder, executive vice-president of International Harvester, was a feature of the luncheon program. Mr. Moulder spoke on the place of the truck in modern life.

After the luncheon the guests were conducted through the Fort Wayne works. At the conclusion of the plant tour the visitors were taken to International's proving grounds, where the new models were put through their paces on the twist course. Here the trucks negotiated the crossing of diagonal ditches. Next, on the Belgian block road, they traveled over a section designed to simulate a gravel washboard road. An oval-shaped concrete track makes it possible to put in high mileages on new models in a short time, thus aiding in the rapid completion of road-testing.

A dinner concluded the day's program.

• Above: International Model KB-7, 134-in. wheelbase chassis with three-way hoist and rounded front end 3-cu.-yd. dump body. This unit, with its patented three-way hoist, is especially adapted to jobs where heavy traffic is a factor. The body, when turned to right or left, does not extend beyond the legal 96-in. limit.

• Below: International Model KBR-11, 149-in. wheelbase chassis with 6-cu.-yd. body and cab protector. This body is available in both welded steel and aluminum alloy. The 451-cu.-in. displacement valve-in-head engine develops 148 maximum brake horsepower at 2,600 r.p.m. and maximum torque of 360 lb. ft. at 1,000 r.p.m.



WASHINGTON NEWS LETTER

IN the last few months, the American public has been exposed to an almost unrelieved barrage of recession talk. From all quarters both in and out of government have come pessimistic predictions of a business slump some time in 1947. Though opinion is divided as to just when the dip will occur, the majority of economists, according to the published results of recent polls, seem to look for a sharp decline in prices after mid-year, accompanied by at least a ten to fifteen percent drop in production before the year is out, with unemployment mounting to five million or more. It goes without saying that if the general public accepted the likelihood of this course of events, it could do a great deal, through its activities in the market place, to help bring it about. But before business men act on the expectation of a recession in the near future and go in for retrenchment of one kind or another, thus indirectly contributing to reducing their own profits, they would do well to scrutinize carefully the validity of these bearish predictions.

For many people these predictions are somewhat reminiscent of the expectations of widespread reconversion unemployment which were so prevalent at the end of the war, and which never did materialize. Admittedly, the basic economic situation is considerably different today, and just because the experts have been wrong before is no reason to assume that their prophecies are necessarily unfounded this time. Nevertheless, the previous experience should be fair warning to the businessman who wants to plan ahead that forecasts of this kind should not be taken at face value alone, and that the important thing is to look behind the over-all estimates to see the pattern of economic reasoning on which they are based. This is especially important because economists have a well-known professional tendency toward inbreeding, a failing which frequently manifests itself in a kind of bandwagon psychology when it comes to making forecasts. Furthermore, regardless of appearances, the opinion among economists as to the outlook for 1947 is far from unanimous. A minority group, starting from the same facts, is much more optimistic in appraising the future, but their case, perhaps because it is less sensational, has not received anywhere near the same amount of publicity as the other.

The first annual Economic Report called for in the Employment Act of 1946 and transmitted by the President shortly after the opening of the new Congress did not take a clear-cut stand on the prospects for continued full employment throughout 1947. But the report did perform the very useful service of summarizing the favorable and unfavorable factors which will be operating in the economy in the year ahead, and which in the last analysis will determine the actual trend of economic activity. According to this report, the principal elements in the economic situation making for recession are essentially three:

(1) First of all, there is the sharp decline in the real income of many groups as a result of the rapid advance of prices following decontrol in the latter part of 1946. As a consequence, the report points out, many consumers have had to dip into savings in order to make ends meet and, for the country as a whole, consumer savings were only about 10 percent of income after taxes in the closing months of 1946. Since this is but barely above the rate in the pre-war years, the report concludes that "It is doubtful whether the rate of consumer savings will or even can be reduced much further except by adversity." The point here is that as production of consumer goods increases in the months ahead, especially the durable goods for which there is still a great backlog of unfilled demand, increased consumer expenditures will be necessary to take all the goods off the market. This will require higher real purchasing power. "If price and wage adjustments are not made —and made soon enough—there is danger that consumer buying will falter, orders to manufacturers will decline, production will drop, and unemployment will grow — unless consumers resort to large additional borrowing and use of past savings to buy the increased supply of goods. These temporary expedients are limited in power and even if available would merely postpone the day of reckoning."

(2) Next, the fear that consumer demand may shrink threatens to reduce the level of business spending, especially for continued accumulation of inventories. During 1946, as output and sales increased, manufacturers and distributors enlarged their inventories from $26 billion to roughly $34 billion, and this increase has imparted a strong stimulus to the rest of the economy. To the extent that this source of demand dries up, aggregate production can be expected to decline.

(3) Finally, prolonged work stoppages in 1947, by interfering with production and intensifying shortages, might have a depressing effect on business outlays for plant expansion, commercial construction, or inventory expansion.

It is still too early to discount the possibility of large-scale strikes this year. But without trying to prove that strikes are beneficial to the economy, it should be clear that their results need not be entirely deflationary. Certainly, the effect of reduced output and a smaller market supply, especially where scarce goods are concerned, is in the direction of strengthening inflationary forces at least for a temporary period.

As for the level of business inventories, it must be remembered that half of the increase in 1946 represents price inflation rather than a growth of physical volume. Actually even the $34 billion total is considerably below the "normal" or peace-time ratio of inventories to sales.

As pointed out in the Economic Report, one or both of two remedies will be required to maintain the present level of consumer purchases —increased consumer income and lower prices. A substantial part of the first requirement should be fulfilled by the round of wage increases now in prospect. It appears at the time of this writing as if labor is in for a wage boost somewhere in the neighborhood of 15 percent. If in addition to this source of increased purchasing power, the prices paid by consumers are reduced from the present all-time peak, the conditions specified in the report for the continuation of the current volume of consumer demand should be doubly met. While this is no ironclad proof that a recession will not occur, it does indicate that the evidence as to the general economic outlook for 1947 is not as one-sided as it has been made to appear.

Modernization of Erie Plant Triples Output and Effects Many Economies

• A general view of the Erie Sand & Gravel Company's recently revamped plant at Erie, Pa. The 30-in. by 250-ft. belt conveyor which parallels the dock is used for stockpiling concrete sand. The company's dredge boat, the Joseph S. Scobell, is unloading opposite the screening plant (extreme right).

another ON THE SPOT report

IN November of 1945 the Erie Sand & Gravel Company of Erie, Pa., resumed operations, after a brief shutdown, with a completely revamped and modernized crushing and screening plant. In addition to tripling output, the new

By WILLIAM M. AVERY

plant was designed to achieve several important economies in the company's operations, including increased labor efficiency, elimination of rehandling and a much higher ratio of gravel to sand than had formerly been possible. The extent to which these objectives have been attained, and the means employed to realize these very tangible benefits, make an uncommonly interesting story.

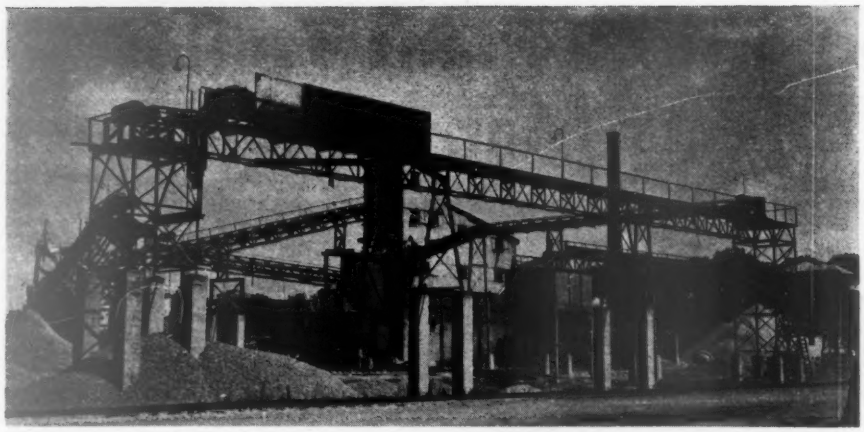
Erie uses a self-unloading boat, the *Joseph S. Scobell,* for recovering material from Lake Erie and from the several rivers which empty into the lake between Detroit and Buffalo. Two 16-in. Amsco pumps, driven by two twin 12- by 12-in. Bates steam engines, load the vessel to its 1,850-cu. yd. capacity in about 3½ hours. The former practice was to take the raw material just as it came from the lake, which meant that approximately 80 percent of the material recovered by the dredge was sand.

Now, by means of selection on the dredge, it is possible to feed up to 90 percent gravel and 10 percent sand to the crushing and screening plant, and in addition all desired grades of sand are produced on the dredge itself. The grading is done by means of a hydraulic screen trough which has been patented by Erie. Each pump discharges to a 62-ft. long double-deck trough suspended over the hatch deck, and the desired sizes are screened out and discharged into the hold while the unwanted sizes are sluiced back into the lake. Fines are about 90 percent dewatered by means of settling boxes located under the troughs.

The *Scobell* is unloaded with a Bucyrus-Erie 37-B clamshell, which has been permanently installed on a special truck operating on rails which straddle the hatch openings. The truck is propelled by means of two deck winches—one mounted forward and the other aft—which make it possible to spot the clamshell in any desired position over the cargo holds. When the clamshell is not in use, the truck is firmly anchored against the deck house at the after end of the runway. The machine has a 40-ft. boom and a 1½-cu.-yd. bucket.

When the clamshell is in operation, it discharges into a steel hopper which moves on rails along the

• Left: A close-up of the Joseph S. Scobell, showing the 1½-cu. yd. clamshell which is used for unloading. The boom conveyor discharges directly into the screening and crushing circuit.



• Another general view of the plant, showing the conveyors used for stockpiling gravel.

starboard side of the hatch deck. The hopper is positioned so that the crane need pivot only a few degrees to discharge. A 36-in. by 128-ft. belt conveyor carries the material from the hopper to a 30-in. by 110-ft. boom conveyor which is swung over the side of the vessel to feed the crushing and screening plant. Average unloading time is about 7½ hours.

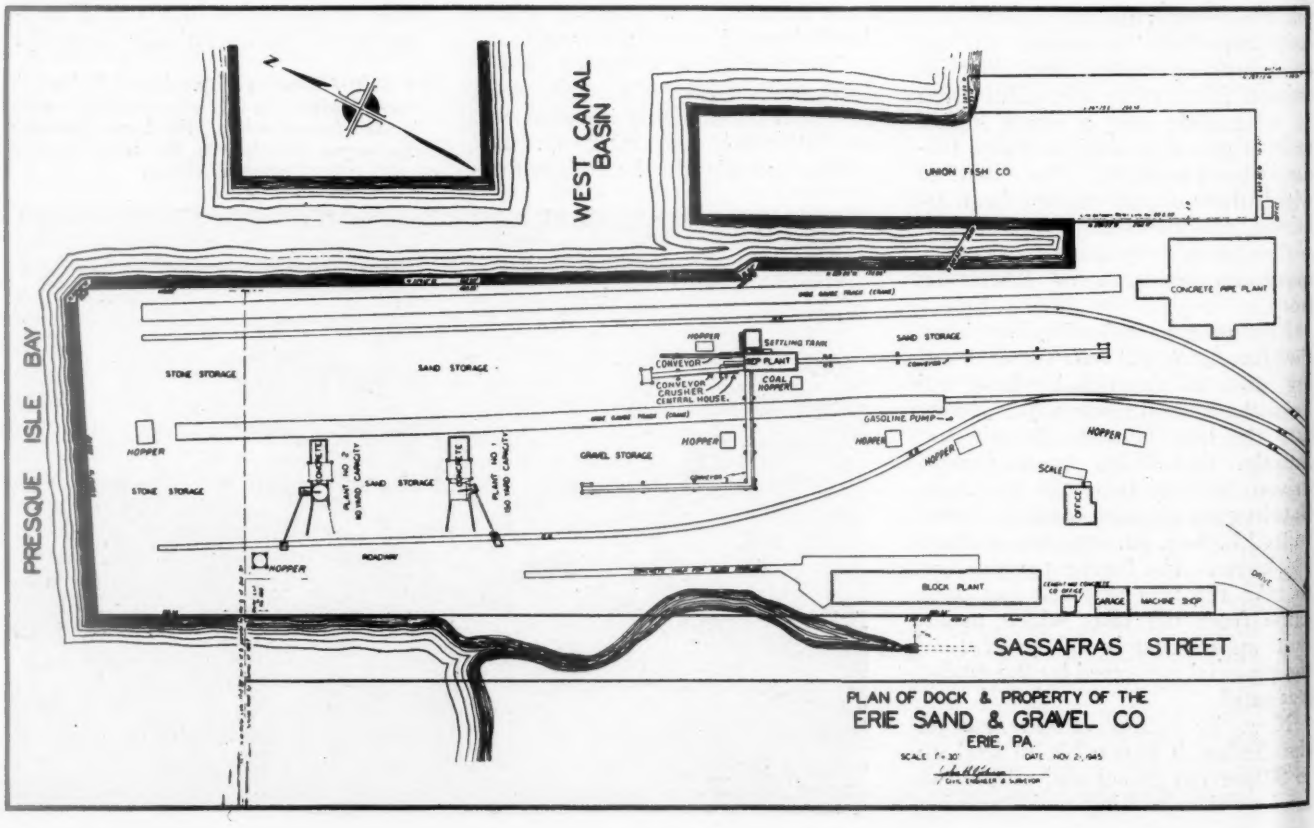
One of the important economies achieved with the new plant is the elimination of rehandling. With the former plant arrangement, the dredge unloaded material into stockpiles adjacent to the dock and overlying a reclaiming tunnel. The new arrangement eliminates this lost motion altogether, material from the dredge boat now going directly into the processing circuit without intermediate stockpiling or rehandling. Under normal conditions the plant now operates only when the *Scobell* is unloading at the dock.

Two sizes of gravel (1⅜- to ¼-in. and ½- to ⅛-in.) and concrete sand are screened out on a triple-deck, 4- by 12-ft. Robins Gyrex screen. The sand drops into a 6- by 42-ft. plant-built drag in which it is classified and then discharged onto a 30-in. by 250-ft. belt conveyor equipped with a tripper for stockpiling the material. Oversize from the scalping deck of the screen drops into a Kennedy-Van Saun No. 25 crusher, which discharges into a 22-in. bucket elevator feeding back to the screen. About 50 percent of the gravel passes through the crusher.

In addition to the belt conveyor which feeds the plant, there are three conveyors for stockpiling processed material, each equipped with a tripping device. The sand conveyor (mentioned above) extends south from the screen house and parallels the dock. The main gravel conveyor crosses a wide-gage crane track adjacent to the screen house and then makes a 90-deg. turn parallel to the dock. All the conveyors were furnished by Robins Conveyors Inc.

The new plant processes material at the rate of 300 t.p.h., which is also the unloading rate of the dredge. This compares with a processing rate of 100 t.p.h. with the former plant. Concurrent with this impressive increase in productive capacity, an equally impressive reduction in manpower requirements has been effected. Whereas six men were required to operate the old plant, only two are needed to operate the present plant. This amounts to a tenfold increase in production per man. Although the old screening building was utilized in the new layout, both the flow and the equipment were completely revamped in order to eliminate most of the re-elevating which was formerly required.

In order to provide adequate storage space for the plant's vastly in-



• Plan of the plant yard and dock area, showing the location of the various storage piles and the several subsidiary operations which consume large quantities of graded materials.

creased output, the company depressed the entire yard area approximately 6 feet below the level of the surrounding docks. This expedient has increased storage capacity by about 25,000 cubic yards, making the total yard storage capacity around 75,000 cubic yards. During the operating season it is the company's practice to store about 50,000 cubic yards of processed material to supply demand through the winter months when lake navigation is impossible. All processed materials are shipped from the plant at Erie in railway cars or trucks. In addition about 500,000 cubic yards annually of unprocessed material is shipped in the company's own vessels to Buffalo and Cleveland.

A major outlet for Erie's production is provided by three industries located on the same property—a concrete pipe plant, a block plant, and two ready-mixed-concrete plants. The No. 1 ready-mix plant is an Erie Steel installation incorporating 150 cubic yards of aggregate storage and a 600-bbl. cement bin. This is a one-stop operation, and under normal conditions it is used to handle all transit-mix requirements. The No. 2 plant is a Johnson installation, providing storage for 110 cubic yards of aggregates and 600 barrels of cement. It is a two-stop plant, and is normally used for dry batching materials, although it is also available as a backup for the No. 1 plant on transit-mix operations. Fifteen mixer trucks, ranging from 1½ to 5 cubic yards, are currently in service. Jaeger, Rex and Blaw-Knox equipment is in use. About half the machines are of the high-discharge type. The volume of ready-mixed concrete handled averages about 200 cubic yards per day. In addition to the two concrete-batching plants, there are seven separate hoppers for batching aggregates at various locations in the storage yard.

The block plant has an 8-hour capacity of 2,600 steam-cured units. The blocks are formed on a Besser Super K-3 stripper and the loaded racks are handled with an Erickson power lift truck.

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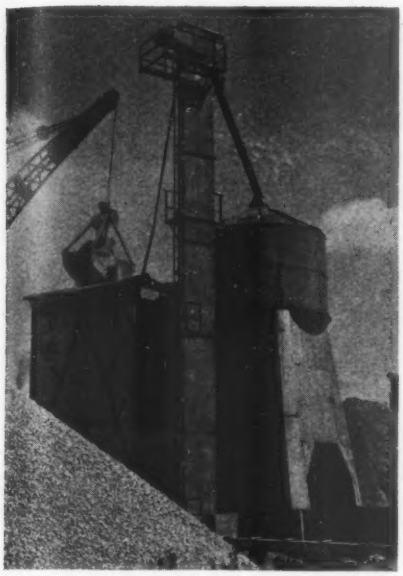
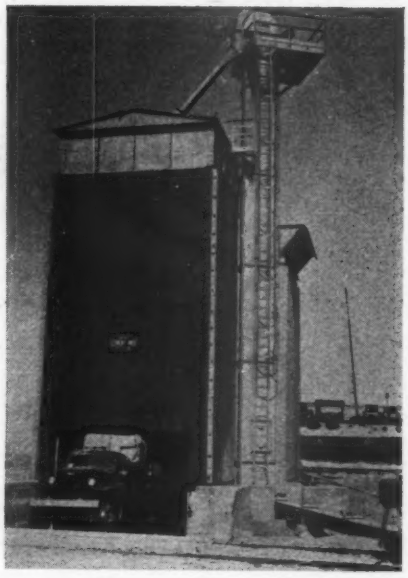
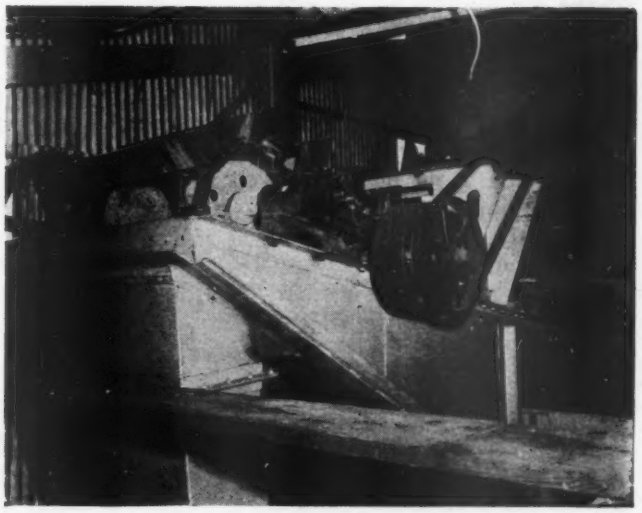


• The No. 2 batching plant for ready-mixed concrete operations is a one-stop operation.



• The No. 1 plant is used for dry batching materials and as a backup for the No. 2 plant.



• Above, left: All the screening is done on this three-deck 4- by 2-ft. vibrating screen.

• Above, right: This 6- by 42-ft. sand drag was designed and built at the plant.

• Left: About 50 percent of the gravel goes through a gyratory crusher and is elevated back to the screen.

PRODUCERS AT N.C.S.A. CONVENTION SEE 1947 AS PEAK PRODUCTION YEAR

Manufacturers' Division Annual Business Meeting Luncheon, South Dining Room, Tuesday, January 28, 1947.

another ON THE SPOT report

THE National Crushed Stone Association held its 30th Annual Convention on January 27, 28 and 29, 1947 at the Edgewater Beach Hotel, Chicago, Ill., drawing one of the largest groups of producers, machinery manufacturers and guests ever to attend a meeting without a machinery exhibit in connection. With the OPA and other restraining influences out of the way the meeting lacked much of the grim determination marking others of recent years but the labor-management problem received much earnest attention. Emphasis was laid on the need for a cooperative approach to this problem from both sides. Reports on business conditions made it apparent that only a major debacle could keep 1947 from being a peak production year.

An outstanding development at this meeting was the announcement that a building had been purchased in Washington, D. C. to house the Association's offices and laboratories. This comparatively new and modern structure is well located in a residential area along the Potomac River within a short distance of the downtown section and, judging from the plans and photographs shown at the convention, is ideally suited for its new purpose. The National Crushed Stone Assn. is to be congratulated on being one of the few such bodies to own its own home.

Board Meetings According to the practice adopted in recent years G. A. Austin (Consolidated Quarries. Corp., Decatur, Ga.) was reelected president for his second term at the meeting of the new board of directors. Also reelected were: Treasurer, James Savage (Buffalo Crushed Stone Corp., Buffalo, N. Y.); Administrative Director, J. R. Boyd; Engineering Director, A. T. Goldbeck; Field Engineer, J. E. Gray.

Otho M. Graves was again chosen to represent the association on the board of directors of its Agricultural Limestone Division.

W. S. Weston, Jr. (Weston & Brooker Co., Columbia, S. C.) was elected a director to succeed his father, and Horace Krause's election to succeed his father, the late E. J. Krause (Columbia Quarries Co., St. Louis, Mo.) was confirmed. The only other change since the 1946 convention was the election of A. B. Rodes (Franklin Limestone Co., Inc., Nashville, Tenn.) at the July directors' meeting to succeed his father, H. E. Rodes, resigned. Also reelected were the four honorary members of the board: A. J. Blair, John C. Gall, John Rice, Sr., and Harold Williams.

Business Conditions The report on business conditions presented at the meeting on Monday morning was as usual one of the features of the convention. This time, instead of each of the regional vice-presidents reading a separate report, a condensed summary of these reports was read by President Austin. These reports showed that the volume of business done in 1946 was from 15 to 50 percent over the 1945 volume in the various regions, with an average increase of about 30 percent. Prices were about the same as in 1945 with a few slight increases late in the year. The percentage of production to 1-shift capacity for the industry was about 65 percent.

The distribution of production for 1946 by major uses was as follows:

Highways—35 to 70 percent
average 45 percent
Ry. Ballast—15 to 25 percent
average 20 percent
Bldg. Constr.—5 to 30 percent
average 20 percent
Misc.—5 to 25 percent
average 15 percent

The prospects for 1947 are generally excellent, with every region but one looking for increases in demand varying from small to very large. It was generally predicted that the highway demands would be up considerably and that the demand for ballast would be about the same. The demand for building construction was one on which few of the vice presidents were willing to go out on a limb, most of them expecting an increase depending on the attitude of labor, the availability of new and replacement equipment, etc.

Report of Administrative Director In his annual report, J. R. Boyd, administrative director of the association, gave the usual financial reports in connection with this association and its affiliated agstone division, showing these affairs to be

in good shape. The membership, he reported, now stands at 115 active members and 69 associate members. In discussing the anticipated expense for 1947 Mr. Boyd mentioned the increased operating costs in normal operations, the cost of financing the work of the field engineer, and the new association headquarters.

Report of Engineering Director A. T. Goldbeck, engineering director of the National Crushed Stone Assn., presented his usual clear and factual report on the work done during the past year and that to be done in 1947. In connection with laboratory research he told of tests of trap rock for concrete pavement, of stabilized gravel and road mixes, of the relative durability of dense and open mixes using both hard and soft asphalt, of the effect of time of drying on specific gravity of coarse aggregate, of a hot-mix cold-lay bituminous pavement, of the stabilization of soil subgrades by the use of limestone dust and other admixtures, of other concrete tests involving a comparison of certain stones and gravels for strength and durability, and many other of the more or less routine tests which are found necessary.

In describing other types of work done during the year Mr. Goldbeck told of the many technical papers and discussions presented before various technical organizations. Articles were also written for various technical publications, also for the purpose of advancing the technology with respect to aggregates and Mr. Goldbeck engaged in many committee activities connected with some of the outstanding engineering and technical organizations.

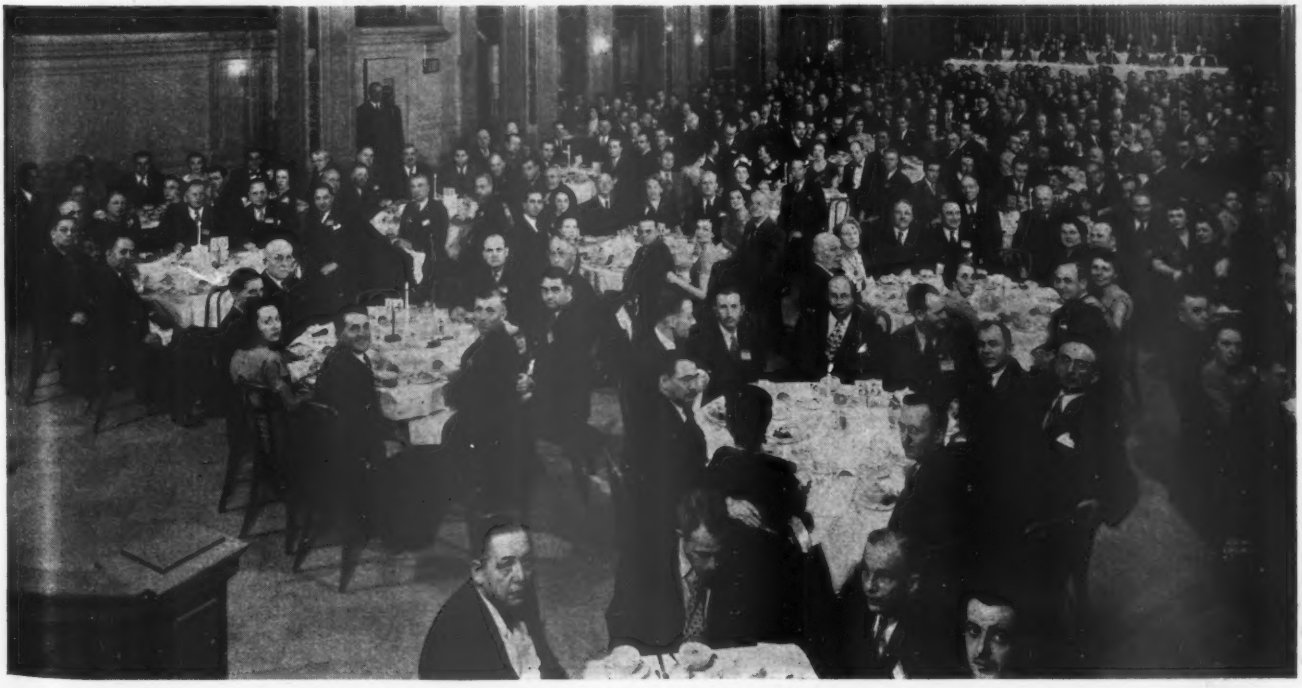
Report of Field Engineer In describing his work during the past year, Joseph E. Gray, field engineer for the association, divided it into two categories: one, offering technical assistance to producers on engineering problems; the other, making known the results of research.

Mr. Gray first described briefly the types of field work done which took him to the plants of nearly every member in 11 states as far west as Texas and Minnesota. The second activity resulted not only in many producer member calls but also in talks given before a number of engineering societies and meetings as far west as Duluth and St. Louis. In closing he invited any member with a specific problem to get in touch with him as every producer member, no matter how small or how far from Washington, is entitled to and will get attention.

Manufacturers' Division The Manufacturers' Division of the National Crushed Stone Assn. held its annual business meeting at a luncheon Tuesday noon, departing from its usual practice of discussing these matters at the breakfast table. J. B. Terbell (American Manganese Steel Div., New York) was reelected chairman, and other officers and directors were appointed. The Division reaffirmed its desire that a machinery exhibit be held in connection with the 1948 convention in Cincinnati, and a committee was appointed to consider whether or not an exhibit was advisable in 1949. It was also voted for each member of the division to make a special subscription to the Association for the loss in income due to the fact that no exhibit was held at this meeting, as was done in connection with the preceding convention.

The Construction Outlook In an early session of the convention, Roland Ashton, of the Federal Works Agency, Washington, D. C., delivered the address written by J. W. Folin, assistant administrator of that agency. Mr. Folin was unable to appear at the convention as planned. The report placed much authoritative information on the outlook for construction in 1947 before the members. The predictions made in the address were based on the assumptions that there would be no depression in 1947, or any major strikes such as harassed industry in 1946. Data were based on 1946 prices.

Mr. Folin predicted that while wages may increase slightly, productivity will also increase. The cost of building materials will increase, but there will be a smoother flow of materials to the contractor. It can be expected that there will be a 50 percent increase in the dollar volume of housing construction over 1946 figures, which will mean a five



Thirtieth Annual Banquet, National Crushed Stone Association, and Second Annual Banquet, Agricultural Limestone Division, Ball Room, Edgewater Beach Hotel, Wednesday, January 29.

to eight billion dollar program in 1947. It is hoped that non-residential construction will reach 50 million dollars a week in 1947. There will be a public construction program involving the expenditure of three billion dollars in 1947; this would be three-fourths more than in 1946. A one to three billion dollar highway construction program is on the books, but Federal Aid expenditures will be less than were previously anticipated, as high costs are slowing down the letting of contracts.

Mr. Ashton went on to discuss the figures for public works, river and harbors, and veterans housing, and the effect of construction on employment. It was discovered in the thirties that construction accounted for only 12 percent of the national income, and public works construction for but 1/3 of this, or four percent of the total. Mr. Folin held that the president was correct in avowing that public works construction cannot stabilize employment in depression years. Further, public works construction cannot be deferred. In summarization, Mr. Ashton said that there is a potential program of construction in the United States of over $13,300,000,000 in 1947.

OPERATING MEETINGS

At the first operating session of this convention, which was held on Wednesday morning, there was an overflow crowd of operating men and equipment manufacturers. As at last year's meeting much of the emphasis was again on the use of drop balls for secondary breaking and for knocking down loose rock from the face. It was again made evident that the most important factor in the successful use of a ball is a good crane operator. An inexpert or careless operator can and has ruined many a good crane. This meeting was presided over by T. C. Cooke (Lynn Sand & Stone Co., Swampscott, Mass.) and Nelson Severinghaus (Consolidated Quarries Corp., Decatur, Ga.) who did their usual excellent job of guiding the discussion and contributed much from their own wide experience.

Drop Ball Mr. Cooke described a Plexiglass plate, about 18 by 36 inches and mounted in rubber, which is used to protect the crane operator from flying rocks and chips. This plate can be dented by large rocks but will not crack and cannot be penetrated. It also gives the operator much better vision than the wire screen formerly used. The plate, he said, is placed on an angle so that most of the hits are glancing ones. According to Mr. Cooke the drop ball should be profitable on any stone if it can replace five men in the quarry. The safety feature of not barring down the face also merits consideration as this is the most dangerous job in the quarry when done manually.

According to Mr. Cooke a 6,000-lb. ball on a 1½-cu. yd. crane with a 60-ft. boom is ideal for his quarry. A live boom hoist is used as this gives easier control than moving the crane. The operator can in this way make accurate hits within a 10- to 15-ft. band. He again described the drop ball used which has several times been described in these pages. The chief feature of this ball is the renewable bottom section. In conclusion Mr. Cooke said that 6,000 pounds was found to be the ideal weight in his quarry; a lighter ball gave poor breakage, and with a heavier one an impact was created which exceeded the strength of the metal in the ball.

Another producer made the comment that the use of a crane and ball in his quarry for part of the secondary breakage is making the drillers work harder than they ever did before. Fifteen drillers were at one time required in this quarry and eight of these were replaced by the drop ball. Also the drillers could not always be depended on to show up for work, especially after payday, but the crane operator, a higher type of individual, was more dependable.

There was some disagreement on the best way to control the aim of the drop ball. Mr. Cooke, in spite of the fact that a special semi-flexible and very strong all-welded tubular boom is used, does not let the operator swing the boom on the radius but gets control by raising and lowering the boom. Bruce S. Campbell (Harry T. Campbell Sons Corp., Towson, Md.) prefers the use of the fairlead for best control. He also endorsed the 6,000-lb. ball as best for his rock which is basically much different from that quarried by Mr. Cooke.

W. S. Weston, Jr., (Weston & Brooker Co., Columbia, S. C.) basing his observations on a study of drop balls used in a number of quarries, commented on the fact that one quarry used old pieces of shovel cable clamped together, while another used similar pieces tied together with a square knot. Still another used old shovel chain. He also commented on the use by Mr. Cooke of a small steel ball on the cable above the drop ball to hold the cable taut while the drop ball is on the ground. Mr. Cooke remarked that application of the hoist brake at the moment of impact is easiest on the cable.

Richard Robinson (Massachusetts Broken Stone Co., Weston, Mass.) voiced the opinion of many when he said that the ordinary crane boom is not strong enough for this work. In his case 4-in. channel bars were welded on the boom in double criss-cross fashion, resulting in a rigid boom amply strong for this work.

Well Drilling Costs In commenting on well drilling costs Mr. Severinghaus showed the accompanying table which gives the results from a questionnaire sent to producers. This table shows that those producers using a 9¼-in. drill got more footage per hour than those using 6-in. drills and at a lower cost per foot. This he finds to be preferable to the use of the smaller drills and a denser explosive. W. H. Ruby (Acme Limestone Co., Ft. Spring, W. Va.) said he finds it cheaper to use more well drill explosive and do less secondary shooting. In order to hold more explosive the 9-in. hole is used.

Mr. Campbell commented on the fact that a few large producers are finding success with the rotary-type drill bit used for drilling oil wells. The first cost of such a machine is high but it apparently pays in the long run and, in his opinion, drilling costs in the average quarry are too high and should be reduced. Mr. Severinghaus commented on the use on the Iron Range of fusion piercing on taconite too hard for well drills at the rate of 10 feet per hour. J. C. Lawrence (Liberty Limestone Corp., Buchanan, Va.) said that the use of a denser and faster explosive cut down the quantity required and that it caused fractures in the stone which made it easier to crush and increased

RESULTS OF QUESTIONNAIRE ON DRILLING

Kind of Stone	Diorite	Dolomite	Granite	Dolomite	Gravel	Dolomite	Lime	Tr. Rock	Gravel
Los Angeles Rattler	17	23	45	19	43	22	25	22	28
Hole size	6⅝	6½	6⅝	6	6	9¼	9¼	9¼	6⅝
Feet per hour	.80	1.7	.82	2.7	1.4	2.6	3.3	3.0	1.0
Cost per foot	3.55	1.43	2.57	1.23	2.36	2.33	1.62	2.34	2.25
Cost per ton	4.8	2.8	5.58	6.94	8.5	4.9	3.1	3.8	5.0
Tons per foot	74	51	47	18	28	52	51	62	45
Tons per lb	7.5	4.9	3.5	2.6	.....	5.9	4.8	6.3	5.0
Feet per bit	2.4	27	6	10	.....	20	92	8	6

the capacity of the plant 300 to 500 tons daily. R. C. Crumbaugh (E. I. DuPont De Nemours & Co., Inc.), Birmingham, Ala., said that the type of material, the height of the face, and the size of the primary crusher are the controlling factors in laying out a shot. The size of the hole is determined by the type of material and the layout and loading of the holes by the other two factors. He described an explosive as "work" and said that it will do more at less cost than anything else it is possible to purchase.

Elimination of Quarry Toes According to Milo A. Nice (Hercules Powder Co.), New York, N. Y., there have been no important new developments along this line since this subject was discussed at the last meeting. With the proper drilling, spacing, depth, and choice of powder little trouble should be encountered. John M. Jeffries (Atlas Powder Co., Wilmington, Del.) said that if everything else is done right that detonation of the hole from the bottom to the top will give the best results. E. V. Scott (Southwest Stone Co., Dallas, Texas) said that in a quarry where there is massive stone at the bottom and broken stone at the top, the best results were obtained by working two levels separately.

Primary Crusher Feeders A. T. Cecil (Jeffrey Mfg. Co., Columbus, Ohio) told of the use of vibrating feeders up to 6- by 14-ft. in size which have been installed in California plants. Fred S. Lutz (Bacon-Greene & Milroy, New Haven, Conn.) said that the size of the crusher determines the length of pan feeder needed for best results but that 12 feet should be the minimum for any crusher. He also said that, in nine installations of this type of feeder made in New England each resulted in an increase of 30 percent or more in the capacity of the plant. By creating a steadier and more uniform flow of material through the plant, said Mr. Lutz, this enables a plant to approach the capacity of the primary crusher. Mr. Cooke endorsed the statements on capacity increase and said that this was largely due to the elimination of crusher jams. Physical conditions made it necessary to install the feeder in his plant at an angle of 45 deg. to the axis of the primary crusher. This, he said, turned out to be an advantage.

Scalping Screens Wayne W. King (W. S. Tyler Co.) Baltimore, Md., mentioned the use of large vibrating screens as primary crusher feeders as well as scalpers, a practice followed in many Canadian and foreign plants. He said that it is important to remove the fines ahead of any crusher. Others agreed that scalping is advisable in many cases but not in all. Mr. Scott said that in one quarry he finds it necessary to leave the fines in with the coarse rock in order to keep it from popping out of the crusher.

Plastic Crusher Bearings In discussing the use of plastic bearings and others not in common use, Luther J. Burriss (Weston & Brooker Co., Columbia, S. C.) said that a plastic type of bearing used in the swinging jaw bearings of a 60- by 40-in. jaw crusher gave far better results than any other type previously used. Geo. D. Becker (Allis-Chalmers Mfg. Co., Milwaukee, Wis.) said that his company has had excellent results in the use of plastic bearings in crushers where there is slow motion and a heavy load. They are less successful, he said, where there is high speed or heat. He cautioned that a plastic bearing will expand or grow due to the lubricating oil but that this can be allowed for successfully when it is installed. Another advantage of this type of bearing is that when it does fail it damages nothing. Oil lubrication is preferred by his company because the use of water causes surface rusting when a machine stands idle over a week-end or longer. Mr. Severinghaus commented that a plastic bearing has been used for five years on a jaw crusher at his quarry and the crusher shaft is only 1/10 worn.

Curved Crusher Jaw Plates C. H. Roberts (Traylor Eng. & Mfg. Co., Allentown, Pa.) said that a curved crusher jaw plate gives a finer product or more capacity, or a combination of both, with less wear on the jaw plates. He said that crushers up to 66- by 84-in. have been so equipped by his company. He cautioned that in equipping a jaw crusher with curved plates there is a reduction in the effective crusher opening. The opening in a 48- by 60-in. crusher, for example, is reduced to 42- by 60-in.

Location of Primary Crusher The question of how far an operator should go in moving his primary breaker closer to the quarry face from time to time brought the interesting comment from Mr. Cooke that the improvement in hauling equipment is rapidly making it inadvisable to put the primary crusher in the quarry at all, even when there is a fairly steep grade to climb. Mr. Severinghaus said that he had moved his primary crusher 270 feet closer to the

• Left to right: C. T. Johnson, sales engineer; H. Litteer, traffic manager; and J. Fred Coleman, Jr., field engineer, all of the General Crushed Stone Co., Easton, Pa.

• Left to right: R. J. McCarthy, North Jersey Quarry, Morristown, N. J.; K. S. Block, Nordberg Mfg. Co., New York, N. Y.; John O. Brennan, Orange Quarry Co., West Orange, N. J.

quarry face but that this was done in order to get more intermediate storage room. Wilson P. Foss Jr., (New York Trap Rock Corp., New York) said the use of a mobile primary crusher might work out in a sand and gravel plant but that such a crusher in the larger crushed stone plants was too large to be moved at frequent intervals.

Delayed Action Shooting At a joint session of operating men and equipment manufacturers on the last day of the convention, L. F. Miller of the New York Trap Rock Corp. and Dr. L. Don Leet of the Harvard University Seismograph Station were teamed together in a discussion of delayed-action shooting. Mr. Miller opened the subject with a description and demonstration of the equipment which his company has developed for delayed-action blasting. He very specifically disclaimed any credit whatsoever for the development of the basic technique, although he expressed the opinion that the particular method worked out by his company seemed to be unique.

Vibration measurements at quarries of the New York Trap Rock Corp., Mr. Miller said, have verified the Bureau of Mines' theory that earth movement (or vibration) is in direct proportion to the amount of explosive used. Believing that if each hole in a blast were fired separately, the vibration would not exceed that produced by the hole containing the minimum amount of dynamite, the company began experimenting with 4-hole shots, using a delay of about 1/50 of a second between holes. The initial objective of the tests was to reduce vibration, while bringing down a comparable amount of stone by shooting the same number of holes normally used in instantaneous blasts. In the very first tests it was noted that instead of the entire mass of stone moving out bodily from the face, a peeling action occurred, and vibrations were so greatly reduced as to become negligible.

With vibration practically out of the picture subsequent experiments were concentrated on the problem of securing better breakage, using many more holes in delayed-action blasts. Mr. Miller showed several slides disclosing the excellent breakage secured with this technique at both dolomite and trap rock quarries which had virtually eliminated secondary drilling and blasting.

The portable switch which Mr. Miller demonstrated to the audience is designed to shoot 20 holes in a single blast with delays of 1/50 of a second between adjacent holes. The switch is motor driven and so designed that the firing sequence can start only with the No. 1 hole. Its action was demonstrated by energizing a series of 20 colored lights mounted on a board, each light representing a blast hole.

In field use, Mr. Miller said, the unit is set up 150 or 200 feet from the quarry face, wires from the blast holes are connected to the proper terminals, and the delayed action switch is set in operation about 10 seconds before the blast. The contact points on the delayed-action switch are energized with a separate hand-throw switch when the holes are actually to be fired.

Probably the most dramatic portion of Mr. Miller's well-organized presentation was the showing of motion pictures of a 10-hole delayed-action blast at one of the company's quarries. The pictures were shown at standard speed, 50 to 1 slow motion, and in reverse to depict in astonishing detail the rock movement which occurs in a blast of this type. The peeling action referred to earlier by Mr. Miller was plainly evident, and in the slow-motion sequence even the time interval between the detonation of adjacent holes was apparent.

In offering a scientific explanation for some of the effects of delayed-action blasting Dr. Leet emphasized that blasts of this type produce less vibration than instantaneous shots because a large portion of the energy goes into stone already uncoupled from the bank. This fact, he said, also explains the increased breakage which invariably results when sequence firing is used. The wedge or ripping action of sequence firing, according to Dr. Leet, channels a major portion of the total released energy into useful work, instead of allowing this energy to be dissipated in an ineffectual slap against the solid back wall. The increased breakage and the sharp reduction in vibration are in the main direct consequences of the more efficient employment of the dynamite.

Dr. Leet showed a number of slides to demonstrate the comparative seismographic effects of instantaneous and delayed-action blasts. In a typical comparison in one quarry, a marked reduction was shown in the vertical component of vibration created by a 7-hole, delayed-action shot as against a 2-hole instantaneous shot. From the standpoint of vibration, Dr. Leet said, a 2-hole shot seems to be the worst condition encountered in most quarries. As a note of caution he pointed out that some of his investigations indicate that there is probably an optimum limit to the number of holes which may be used in sequence firing, and that when this limit is passed vibration shows a marked increase.

GENERAL MEETINGS

Management-Union Cooperation *Management-Union Cooperation* *Some of the Major Obstacles* was the subject on which George Romney, general manager of the Automobile Manufacturers Assn., Detroit, addressed the Wednesday luncheon sponsored by the Manufacturers' Division. According to the speaker we must get down to the fundamentals of the problem as the people are opposed to excessive power in any hands and insist on the right to correct any abuses of power. Our chief deficiencies, said Mr. Romney, are social; our mechanical conversion from wartime conditions is a fact but our human conversion

• Left to Right: Coleman C. Smith, Patterson Quarry, St. Charles, Minn.; A. W. Lehman, Euclid Road Machinery Co., Cleveland, O.; John F. Patterson, Patterson Quarry, St. Charles, Minn.; and Vern Wheeler, Euclid Road Machinery Co., Cleveland, O.

is still not completed. Two strikes alone cost us 1,400,000 cars and trucks in 1946 but they also cost us many other things, as internal dissension weakens us in the eyes of our enemies.

Labor-management relations, according to Mr. Romney, are the center of our problem and affect the entire world picture. The first step, he said, is that labor union leaders must be made responsible to their members. Then labor and management must agree on the objective of their cooperation and the means used to attain it. Increased production is the key to the entire situation and union and business leaders now agree on this. As employment is now near an all-time high this means, said Mr. Romney, that increased production can only be obtained by increasing the output of each worker, but it must be obtained before any of our other objectives can be achieved.

In discussing the various labor measures now under consideration Mr. Romney said that the Wagner Act lacked the necessary controls to keep the power of labor from spreading too far and it has spread to the extent that an employer must now bargain, not with the local union alone but with a union covering the entire industry and having the pressure of millions of workers. This has created a monopolistic condition which can only be be compared with the robber-baron era of industry which gave the unions their start. There is no one answer to this condition, he said, and it must probably be solved by the trial and error method before a suitable labor law can be formulated which will actually make possible collective bargaining between an employer and the local union of his workers on an equal footing. Any agreement which will result in legislation must also be made with the public represented, as the results will affect all our lives for many years to come.

Mr. Romney then went into some detail to describe the manner in which monopolistic power got into the hands of a few union leaders and he also described the effect last year's coal strike had on the use of coal. Coal, he said, is now on the way down competitively; 95 percent of the new locomotives being built use oil, the large office buildings in New York and other cities are converting to oil, etc. He described this as the beginning of a decline similar to that which hit the musicians after some of Petrillo's monopolistic decrees. Mr. Romney again emphasized the fact that we have actually

• Left to Right: J. Fred Coleman and Redington Moore, both of the General Crushed Stone Co., Easton, Pa.; C. T. Johnson, General Crushed Stone Co., Wilkes-Barre, Pa.; John L. Stevenson of A. R. Amos, Jr., Philadelphia, Pa.

only two alternatives: either we must break up all monopolies and create and perpetuate a free competitive economy, or we must submit to arbitrary domination by labor, management, or government, whichever may gain the upper hand.

According to Mr. Romney one prevailing basic fallacy widely held is that the labor of the individual must not be measured as a competitive factor. Another is that the workers as a whole compete with the employers as a whole; this he holds to be untrue as the employer and his employees have more in common with each other than either has with any outside agency. The third fallacy, he said, is that wages are paid from profits. Actually wage increases do not decrease profits; they raise prices and the consumer pays the bill.

Employer-Employee Relationships *Getting Worker Cooperation Today* was the challenging subject on which Whiting Williams, consultant and adviser on industrial relations, addressed one of the early sessions of the three-day meeting. In sharp contrast with the deep pessimism being widely expressed at present, the general tone of Mr. Williams' remarks was surprisingly optimistic.

In documenting his reasons for anticipating an early improvement in the relationships between workers and management, the speaker pointed to the recent breakdown in the tacit alliance between the White House and the C. I. O. as being one of the most encouraging developments in many years. This reversal, a direct consequence of the November elections, suggests, he said, that future decisions on labor problems will be geared to the general welfare of the nation to a far greater extent than has been the case for a number of years.

With the Congress plainly in the mood to take action in order to straighten out the present muddle in employer-employee relationships, employers now have an unparalleled opportunity to seek genuine worker cooperation, Mr. Williams said. He urged employers to make a new effort to rediscover the *individual* worker, bearing in mind at all times the following critical factors which have an important influence on the relationships between employees and management:

1. The worker's constant fear of the loss of his job, unless specific efforts are made to reassure him on this score.

2. The worker's hope for advancement, without which true loyalty to the employer is virtually impossible.

3. The worker's pride in his position and in his importance on the job, without which he cannot experience the pride in himself which every well-balanced human must possess.

4. The worker's constant desire to know where he stands with his employer.

5. The worker's need for commendation and praise, especially when deserved.

6. The worker's need for closer contact with his supervisors.

Mr. Williams sees no prospect that unions will disappear from the scene. They perform, he told his audience, a valuable service which can, in the long run, benefit both labor and management. He urges that management forget about winning legal victories over workers and concentrate its efforts on winning the

confidence and loyalty of employees. Today the worker is more willing to listen to the employer than has been the case for some time, he stated. If management uses this opportunity to establish better relationships with individual employees, Mr. Williams believes that the workers themselves will curb their unions and bring peace to the labor front.

In pointing out to his listeners that loyalty cannot be bought, Mr. Williams deplored the widely-accepted fallacy that money is the only justification for work. Workers, he said, will perform miracles for the leader who, while demanding much of them, is wise enough to give them an opportunity to feel proud of what they do.

Dust Control In Industry Some engineering aspects of dust control, a subject of growing interest to crushed stone producers, were discussed by Theodore F. Hatch, research director of the Industrial Hygiene Foundation of America. Many of Mr. Hatch's observations had specific reference to the elimination of silicosis, which is happily not a serious problem in the crushed stone industry.

The speaker drew a sharp distinction between the problem of dust dispersion and dust generation, pointing out that the nuisance or hazard created by the latter usually constitutes a far more serious problem than where mere dispersion is involved. He cited crushing, screening and piling operations as good examples of dust generation.

Mr. Hatch described studies made by him which indicate that micron-size particles released in a crushing operation exhaust their kinetic energy about 3/8 of an inch from the source, clearly demonstrating that air is the carrier. He concludes from this that the principal problem in dust control is air displacement, and that dust collection systems are primarily air collectors. Most of the processes in the crushed stone industry exemplify the air displacement theory, Mr. Hatch said. Hammermills, for example, displace a definite amount of air and can be rated in respect to this characteristic in much the same manner as fans are rated.

Crushed stone moving on a conveyor belt and discharging onto a pile was another example of the air displacement process mentioned by the speaker. Although the stream on the belt may consist of 50 percent stone and 50 percent air, in falling freely it may expand so that the relationship becomes 90 percent voids to 10 percent stone. When the 50-50 ratio is restored as the material piles up, the air which was drawn into the stream as it fell is suddenly squeezed out, inducing a definite air displacement which varies directly with the tonnage of material flowing and with the square of the distance which it falls.

According to Mr. Hatch it is better and easier in the long run to prevent the formation of air streams than to try to handle them later. He suggested such preventive measures as throttling down openings in the base of elevators and chutes, and the use of small surge bins in conveying systems. Design of dust control systems, the speaker concluded, can be reduced to basic engineering principles and the effects predicted within quite narrow limits.

One of the outstanding hits of the convention was the banjo playing of Perry Bechtel (right), Atlanta, Ga. Mr. Bechtel and John Wolfe (left), Atlanta Truck & Tractor Co., attended the meeting as representatives of the Campbell Limestone Co. They are shown here entertaining guests in the Pit and Quarry suite.

Shore Line Protection J. Spencer Smith delivered an address on the subject *Expanding Opportunities for Use of Stone in Shore Line Protection.*

Traffic Bound Roads A. T. Goldbeck, engineering director, National Crushed Stone Association, then spoke on the subject *Studies of Stone vs. Gravel in Traffic Bound Roads.* This was a description of an effort made to determine whether the angularity of crushed stone fragments imparts greater stability than more rounded fragments are able to produce. Mr. Goldbeck described some of the tests made to determine the load-carrying capacities of surfaces of varying thickness. The talk was illustrated with slides showing details of the experiments and graphs of the results. Mr. Goldbeck stressed the fact that in a stable road the pressure produced by the load must never exceed the bearing capacity of the subgrade, or failure of the road surface will result.

Asphaltic Concrete George H. Dent spoke on *Some Basic Principles Concerning Asphaltic Concrete.* Mr. Dent is the district engineer of The Asphalt Institute, Washington, D. C. The paper was co-authored by Bernard E. Gray, chief engineer, The Asphalt Institute, New York City. The basic principles of proportioning, mixing and laying asphaltic concrete were discussed.

Banquet The association's 30th annual banquet was presided over by G. A. Austin who had just been reelected to a second term as president of the organization. In his brief introductory remarks, Mr. Austin made humorous reference to the fact that it was just as well that the members of the association had reelected him, since he would probably have seized office anyway in keeping with the best practice in his native state of Georgia.

A. J. R. Curtis, assistant secretary and safety director of the Portland Cement Association, presented the awards in the National Crushed Stone Association's annual safety contest. Winner, with more than

(*Continued on page* 86)

Importance of Agstone as Soil Builder Stressed at Division's Second Meeting

another ON THE SPOT report

THE second annual convention of the Agricultural Limestone Division of the National Crushed Stone Association was held at the Edgewater Beach Hotel, Chicago, January 30 and 31, 1947, immediately following the convention of the parent association. Many interesting papers were presented, most of which emphasized the importance of agstone as the base on which the soil conservation program must be built. It was also made evident that the users, producers and distributors of agstone must cooperate to insure the best results from and the least possible waste of this vital crop need.

The convention opened Thursday, January 30, with a "Greeting" luncheon in the ballroom of the Edgewater Beach Hotel. H. A. Clark, manager, Pit and Quarry Sales, Consumers Company, Chicago, presided over the luncheon.

Washington Scene Wayne Darrow, publisher, *Washington Farmletter,* Washington, D. C., was guest speaker at the luncheon and discussed *Back of the Farm Scenes in Washington.* As an observer of governmental activities in Washington, Mr. Darrow gave a brief review of the formation of the various branches of our government and its many ramifications. These fundamentals were given that a better understanding may be had of why and how legislation is handled in Washington and what might be expected from a Democratic administration with a Republican Congress. According to the speaker, agricultural limestone producers may expect continued, and improved farm programs and legislation, a matter of utmost importance to producers.

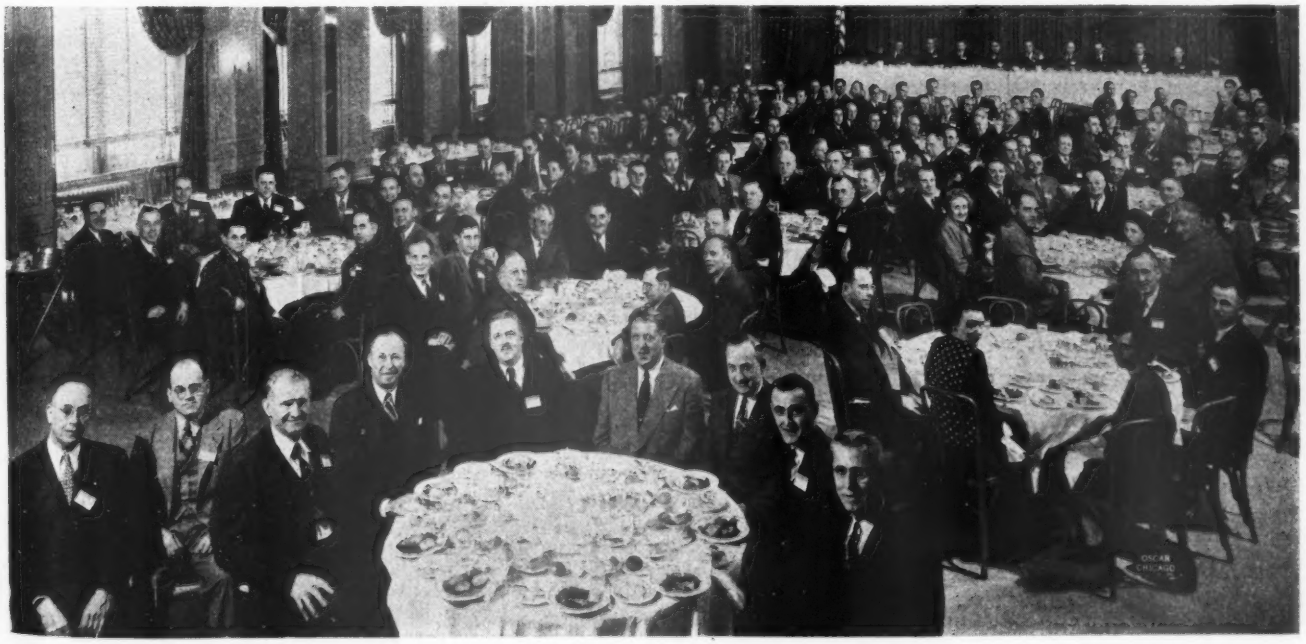
• S. P. Moore, who was re-elected chairman of the Agricultural Limestone Division.

Reports of Officers Following the luncheon, S. P. Moore, Concrete Materials and Construction Co., Cedar Rapids, Iowa, and chairman of the Agricultural Limestone Division for the second consecutive year, opened the first sessions of the convention. After giving a few, but hearty, words of welcome to those in attendance, Mr. Moore introduced Henry A. Huschke, managing director of the division, who gave the managing director's annual report.

Folders, prepared by the division and made available for the purpose of educating and selling farmers on the merits of using agstone, and the division's publicity program of promoting agstone consumption, were points of great interest brought out in Mr. Huschke's report.

J. R. Boyd, secretary-treasurer of the division, gave his annual financial report which included a brief accounting of expenditures for the past year as well as the proposed budget requirements for the coming year.

Agstone Statistics *People, Limestone and Land* was the title of a talk given by Grant G. Thompson, assistant director, Field Service Branch, Production and Marketing Administration, U.S.D.A., Washington, D. C. In his address, Mr. Thompson gave a statistical report showing the increased volume of agstone used each year for the past two decades. This report also included the production figures of agstone for the same period. In spite of the increases shown in each report over this period of time, Mr.



• Scene at the Greeting Luncheon, held on the first day of the Agricultural Limestone Division convention in the Edgewater Beach Hotel's ballroom.

Thompson pointed out that the population of the country had also shown a tremendous increase which has resulted in reduced average acreage of crop producing land per person. The significance of these data is that they make it evident that each acre of land will have to give a better yield if the American pantry is to remain well stocked. To this end, the Field Service Branch has appropriated 20 percent of its funds for liming programs throughout the country.

The first afternoon's session was brought to a close with the announcement of the members of the nominating, resolution and auditing committees and adjournment so that these committees might get together for their respective meetings.

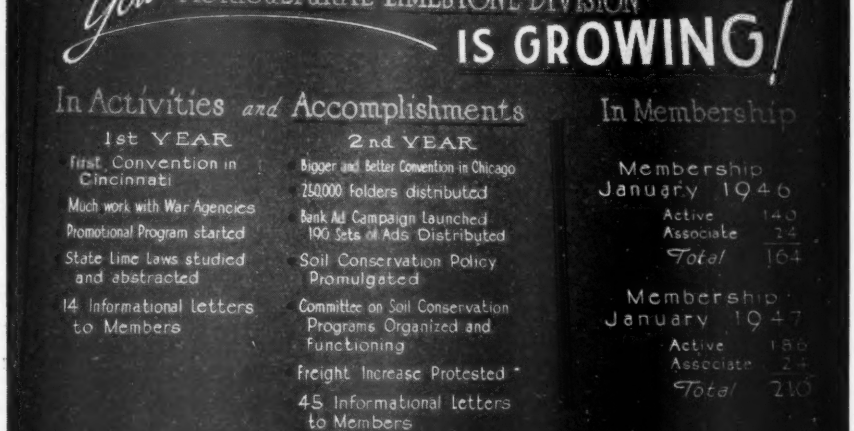
Land Care and Use The first speaker at the morning session, Friday, January 31, was to have been Kenneth C. Beeson, of the United States Plant, Soil and Nutrition Laboratory, Ithaca, N. Y. Due to the severe weather he was delayed in his arrival, and Dr. Grover F. Brown, chief, Agronomy Division, Soil Conservation Service, Washington, D. C., spoke first. His topic was *Proper Use and Care of the Land.* His talk, illustrated by slides and a motion picture, developed the fact that millions of tons of topsoil from the nation's farms are washing down our rivers each year. This is a loss that no country can long endure. It is primarily an agricultural loss, which in turn brings about a secondary loss as the silt in the rivers fills up the huge reservoirs behind the great dams. Unless something is done, this silt will, in time, fill these reservoirs completely and render them useless.

Dr. Brown explained the organization of the Agronomy Division, and went into detail on the Research Division. He explained how the soil erosion problem must be solved with the cooperation of the farmer himself, field by field, and how this calls for education among farmers.

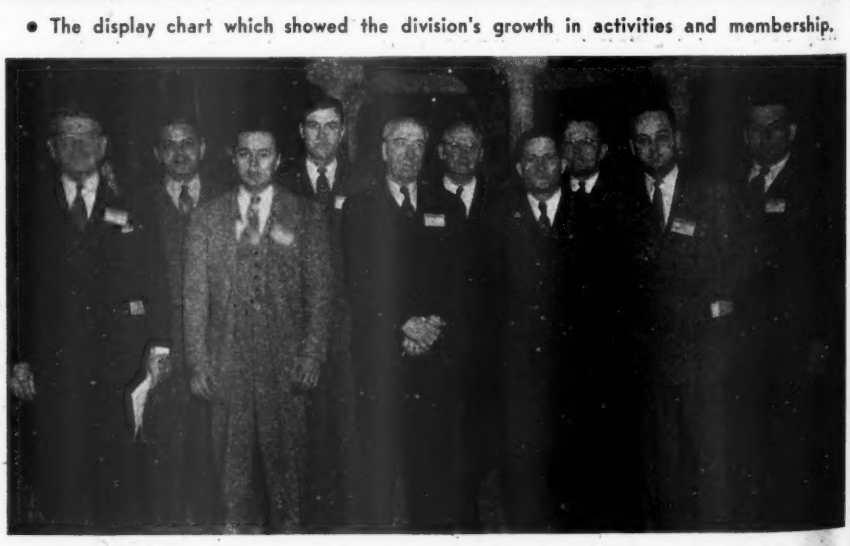
There are two phases of soil erosion, one, tearing the individual soil particles loose from the mass, and the other, moving the soil particles by wind or water. The big problem is movement by water.

The effect of rain on soil erosion was illustrated through the use of a motion picture. Under the right conditions soil may splash as far as 20 feet when a raindrop hits the ground. Dr. Brown explained that as a rule the soil most easily carried is the most important, and showed

• Left to right: R. B. McNab, American Limestone Co., St. Louis, Mo.; B. P. Donnell, Valley Dolomite Corp., St. Louis; L. M. Vogler, state director, P. & M. A., Indianapolis; H. C. Gorman, Gorman Construction Co., Flemingsburg, Ky.



• The display chart which showed the division's growth in activities and membership.



• A group of Iowa producers. Left to right: C. A. Allen, Iowa Agricultural Limestone Assn., Des Moines; Ben Ravits, Concrete Materials & Construction Co., Cedar Rapids; J. E. Waggoner, Central City; Don Kaser, Kaser Construction Co., West Des Moines; F. E. Bellamy, Concrete Materials & Construction Co., Cedar Rapids; P. M. Nauman, Dubuque Stone Products Co., Dubuque; Vern Schield, Schield Soft Lime Quarry, Waverly; W. D. Dillon and Bill Sharpe, Dillon, Sharpe & Co., Columbus Junction; Weber Dehn, Weber Dehn Construction Co., Manchester.

the effect of clear water and muddy water on bare ground. Muddy water will quickly scour away the topsoil, while clear water picks up little

• Dr. Grover F. Brown, chief of Agronomy Division, Soil Conservation Service, Washington, D. C.

sediment as it moves across the ground. It was brought out that because lime makes crop selection easier, it is of great value in erosion control. The top cover furnished by the crop is one of the most important control factors.

Better Soil Practices Kenneth C. Beeson spoke next on the subject, *Can We Improve Nutrition Through Better Soil Practices?* Mr. Beeson explained the relation of soil mineral deficiency to human illness. After discussing the types of fertilizer used in this country, and giving a brief history of agriculture and lands, he used slides to illustrate the effects of deficiencies of such minerals as phosphorus, cobalt and iodine on cattle. He also explained selenium toxicity, which occurs in some Western states. His slides included maps delineating the areas where certain deficiencies were found.

• Mr. and Mrs. Edwin J. Seitz, partners in the operation of the Sheridan Stone Company, Sheridan, Ill.

Efficient Use of Agstone At the general luncheon, with P. E. Heim, Carbon Limestone Company, Youngstown, O., presiding, B. J. Firkins, Professor and Research Professor of Soils, Iowa State College of Agriculture, Ames, Iowa, spoke on *Factors Governing the Efficient Use of Limestone.* He assured the audience that lime was a definite aid to agriculture, and that its use justified extensive experimentation to make more efficient use possible. The calcium in the lime can either act as a nutrient, or can be used to adjust the soil reaction to permit biological action, or both. Lime also may have a great effect on the plants in their efforts to utilize the available mineral nutrients. Mr. Firkins said that in his opinion "sweet land" agriculture was best in the humid corn belt, explaining what acid soil is and what effect it has on plants. Sweet land agriculture calls for the use of lime, and he went on to explain methods used to determine liming needs. There are state-to-state variations in these

• K. C. Beeson, U. S. Plant, Soil and Nutrition Laboratory, Ithaca, N. Y.

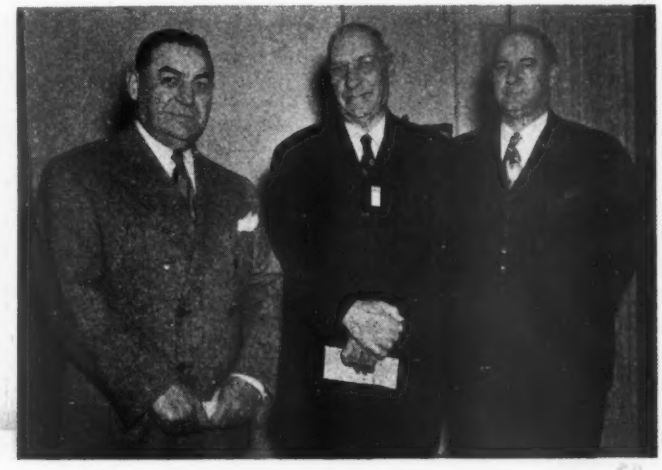
methods, and a test which will produce valid results in one state and type of soil is not necessarily the right one to use in another state. He discussed the various kinds of liming materials, and stated that 60,000,000 tons of limestone are needed in Iowa in the next ten years. In connection with this he pointed out that Iowa limestone runs about 90.5 percent calcium carbonate equivalent. Coarse-ground lime, that retained on a 4- or 8-mesh screen, has little or no value to the farmer, as it will not give up its full value for many years. Lime is essentially a soil mineral, and should not be viewed as a direct fertilizer. It can be used to advantage in preparing the ground for a legume crop, but should be applied properly. There is a tendency at the present time for the operator to run the spreader too rapidly, permitting the lime to get into the air and blow away. Mr. Firkins told the audience that care should be taken as to methods of distribution of their product to assure delivery of a good quality material to the customer.

Food or Atom Bombs Dr. George D. Scarseth, director of research, American Farm Research Association, Lafayette, Indiana, addressed the regular session of the Agricultural Limestone Division. Pointing out that we, as a species, are primarily food makers, Dr. Scarseth deplored the poor job being done with the land which supports us and the wide acceptance of the absurd theory that increased efficiency in the use of the land must result in overproduction.

The speaker reminded his audience that there is no food scarcity today for approximately one-fourth of the 2-billion world population. Starvation, he asserted, has taken on a new significance since enlightenment has become more general. Science, technology and the atom bomb now make it possible for small,

(*Continued on page* 91)

• Left to right: E. E. Cooke, Thomasville Stone & Lime Co., Thomasville, Pa.; O. M. Stull, Liberty Limestone Corp., Buchanan, Va.; C. M. Sims, Campbell Limestone Co., Gaffney, S. C.



Pennsylvania Stone Producers Elect Officers and Directors

THE Pennsylvania Stone Producers Association held its annual business meeting in the Hotel Penn-Harris, Harrisburg, Pa., on January 8, 1947, at which time the following officers were elected for the ensuing year: president, John Curtin Sr.; vice-president, T. C. McPoyle; treasurer, Ellwood Gilbert; secretary, Walter Fehr.

Board members named include the following: Paul I. Detwiler, New Enterprise Stone & Lime Co., New Enterprise, and Charles Coburn, The Carbon Limestone Co., Youngstown, O., (Western Section); W. E. Wilson, Hoffman Bros. & Wilson, Harrisburg, Pa., and S. D. Narehood, Narehood Bros., Milton, Pa., (Central Section); J. P. Peacock, Bethlehem Steel Co., Bethlehem, Pa., and H. M. Binkley, Binkley Bros. & Ober, East Petersburg, Pa., (Eastern Section). H. H. Wagner was reappointed as general manager of the association.

The business meeting was brief and was adjourned at 11:00 a.m. in order that the association could act as host to the sand and gravel, slag, bituminous concrete and construction industries, as well as to the officials of the Pennsylvania Department of Highways.

This meeting lasted for two days, during which time the highway officials presented their 1947 maintenance and construction program. According to their estimates the following quantities (totals) of materials will be required by the Pennsylvania Department of Highways in 1947: 781,862 tons of bituminous concrete, 2,762,676 barrels of cement, 1,223,692 tons of sand, 46,354 tons of reinforcing steel, 29,421 tons of structural steel, 31,358,741 gallons of bituminous material and 7,728,759 tons of aggregates. They discussed maintenance, specifications, bituminous plant mixes, and other problems incidental to construction and maintenance operations of the Pennsylvania Department of Highways.

There were two hundred people in attendance and they represented a good cross section of the highway construction and allied industries. This is the first time any general meeting of this magnitude and scope has ever been held in Pennsylvania for the purpose of expediting the unusually large program of the Pennsylvania Department of Highways.

• Group at right: W. E. Wilson, Hoffman Bros. & Wilson, Harrisburg; C. U. Bowersox, Lester Mitchell, Mrs. Verna Stahl and John C. Stahl, all of J. C. Stahl Estate, Middleburg; R. W. Nesbit, L. B. Smith, Inc., Camp Hill; F. A. Esterline, Susquehanna Quarry, Millersburg.

• Left to right: W. R. Hazzard, Warner Co., Philadelphia; John Curtin Sr., Warner Co., Bellefonte, president of Pennsylvania Stone Producers Assn.; Nicholas Cascetti, Stowe Trap Rock Co., Philadelphia; Ellwood Gilbert, New Castle Lime & Stone Co., New Castle, treasurer of Pennsylvania Stone Producers Assn.; T. C. McPoyle, The John T. Dyer Quarry Co., Birdsboro, vice-president of Pennsylvania Stone Producers Assn. Standing, H. H. Wagner.

• Lower left group: C. H. Buckius, asst. chief engineer, Pennsylvania Dept. of Highways; Philip Corson, G. & W. H. Corson Co., Plymouth Meeting; Charles Coburn, The Carbon Limestone Co., Youngstown, O.; Ray Warren, Western Pennsylvania Sand & Gravel Producers, Pittsburgh; Thomas Frame, chief engineer, Pennsylvania Dept. of Highways; W. A. Bliss, Dravo Corp., Pittsburgh; Ray Smock, secretary of highways, Commonwealth of Pennsylvania; and Shirley T. Aungst, secretary to Mr. Wagner.

• Left to right: George Ritter, Hercules Cement Co., New Cumberland; Kenneth Kressler, Easton; M. L. Jacobs, Bethlehem Steel Co., Bethlehem; and H. H. Wagner, general manager, Pennsylvania Stone Producers Assn.

Building and Modernization Program Launched by Pacific Coast Aggregates

another ON THE SPOT report

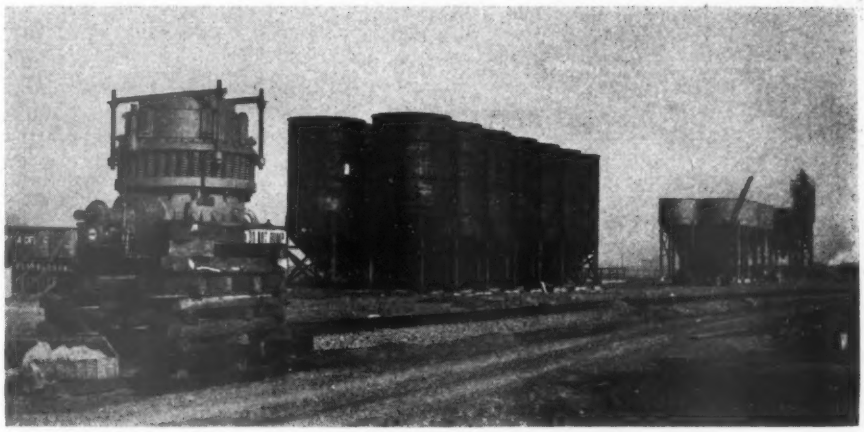
PACIFIC Coast Aggregates, Inc., of San Francisco is making marked progress on a previously-announced program of improving its extensive plant facilities. Already one of the largest aggregates-producing concerns in the nation (it did a $12,000,-

By HARRY F. UTLEY

000 business in 1946), it has embarked upon an impressive program of new plant construction, as well as the improvement of many of its existing plants, so as to be in position to capture an even greater share of the market for its products in the years immediately ahead.

Late in 1946 the company moved its general offices, which for many years had been located in leased space in the Wells Fargo Building in downtown San Francisco, to a new and modern structure adjoining one of its main distributing plants at 17th and Florida Streets. The new air-conditioned building, of reinforced-concrete construction, represents an investment of approximately $450,000. Offices for the company's 90 executives and employees occupy 15,000 square feet of floor space in the new building, while 46,000 square feet at track level are given over to warehousing. An employees' lunchroom is one of the many features of the new structure.

The new $1,000,000 sand-and-gravel plant at Eliot, Calif.—probably the largest project on the company's program—is scheduled for completion early in 1948, and work is now proceeding on schedule. Prac-



• Steel bins and the batching plant at the Kerlinger, Calif., plant of Pacific Coast Aggregates, Inc. A new cone crusher is in the foreground awaiting installation.

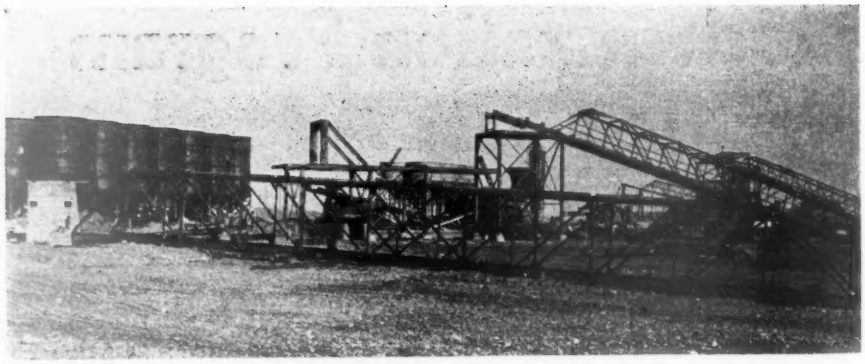
tically all of the concrete footings and bin supports have been poured, and some of the steel has been erected. The new facilities at Eliot will replace an old plant at the deposit, and will have a capacity of 800 to 1,000 tons per hour of finished material. Probably the most interesting feature of the Eliot plant will be the use of primary and secondary surge piles to feed the various phases of the processing operations, allowing each to operate independently of the other as the demand requires. The main or primary surge pile of raw material will have a live-storage capacity of 100,000 tons, with a system of conveyors in reclaiming tunnels feeding the material to the (1) primary-crushing, (2) secondary-crushing, and (3) washed-gravel plants. These plants will, in turn, discharge their output to a series of six secondary surge piles which will supply the various sizing and washing departments of the main processing plant.

The company's new plant at Kerlinger, Calif., just south of Tracy, is rapidly nearing completion, and operations are scheduled to get under way about April 1, 1947. A 150-t.p.h. temporary plant is now producing four sizes of coarse aggregates and sand at the site but will be abandoned when the permanent plant gets into production. The Kerlinger plant will have a capacity of about 500 t.p.h. and was designed along the lines of the Eliot plant, utilizing the same multiple surge-pile scheme. Both the Kerlinger and Eliot plants are of steel and concrete construction and each will have batching plants operating in conjunction.

Two other huge plants, similar in design, are also under construction in East Oakland and in Sacramento. These are combination batching-and-distributing plants, plus warehouse facilities for handling the many other building materials and supplies marketed by the company. Both will go into service by or before the summer of 1947.

The East Oakland plant, located on a tract at San Leandro Boulevard and 92nd Avenue, will receive aggregates from the company's Niles and Eliot plants. Trackage includes a 15-car spur with an under-track

• A distant view of the 1,000-t.p.h. plant of Pacific Coast Aggregates at Eliot, Calif., while under construction.



• A general view of the Kerlinger plant while under construction.

pit for receiving the sand and gravel. A belt-conveyor will carry the materials from the pit to the top of the ready-mix plant for loading the six-compartment, 350-ton plant bin. The plant will utilize bulk cement, stored in two tanks equipped to receive cement by either railroad or truck, and may be operated as a straight batch plant or as a pre-mix unit. All proportioning will be under automatic control. When the six-bin compartments are full, aggregates will be diverted to a hopper at the top of the concrete plant feeding a shuttle conveyor system which will load the storage bunkers. These consist of 12 cylindrical steel bins with conical bottoms, each bin having a capacity of 125 tons. They are arranged in two parallel rows of six each and can be utilized to load out aggregate delivery trucks, or the material in storage can be reclaimed by belts running beneath the bins to feed back to the main conveyor leading up to the concrete-plant bin. The gates feeding the reclaiming conveyors will be electrically operated by remote control from a master control station.

A transfer point on the reclaiming conveyor is also provided to divert material to another conveyor feeding a 5- by 60-ft. rotary dryer which is being installed at the site. The dryer will prepare aggregates for use in the preparation of "Mix-Quick," a company product which has proved extremely popular and for which additional processing facilities were required. "Mix-Quick" is a dry-batched concrete mixture composed of carefully-proportioned sand, coarse aggregate and cement, and is marketed in paper bags. After drying, the sand and gravel will be stored in six cylindrical steel bins similar to those making up the truck-loading bunkers. Mixing and packing of the dry-batched ingredients will be done in a 40- by 140-ft. wing of the main warehouse building which will adjoin the six bins.

The main warehouse structure, now being erected, will contain 20,000 sq. ft. of floor space. Later on, a truck-repair and maintenance building is to be erected adjacent to the warehouse.

The Sacramento plant is to be almost identical in design and size, except that it will not include a dryer, bins nor facilities for preparing "Mix-Quick."

Already completed and in service as a part of the company's post-war improvement program are two new batching plants and bunkers at San Jose and Palo Alto. The Palo Alto installation, supplied by the Noble Co. of Oakland, consists of a standard 150-ton batching plant complete with bulk-cement silo. Additional storage facilities for aggregates are provided by four steel bins with a combined capacity of 600 tons. These bins are arranged so that they may either load trucks or feed back aggregates, via conveyor, to the batching-plant bin. The San Jose installation, located on Stockton Avenue, supplements the old batch plant and bunkers on Phelan Avenue. The new plant has a bin capacity of 350 tons and is completely automatic in operation. As with all the company's batch plants, bulk cement is used exclusively.

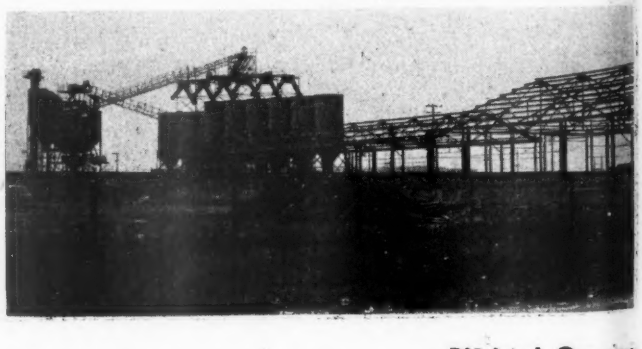
The company also recently completed the installation of batching facilities at its Niles, Calif., aggregates plant, while at Richmond, Calif., a new warehouse and a batching plant were placed in service during the past year.

The scope of the company's activities was broadened in December, 1946, when announcement was made of the acquisition of the Grant-Pacific Rock Co. Pacific Coast Aggregates had previously held a 50 percent interest in this concern, and now owns it outright. Plans are already in progress for revamping the five properties involved in the deal, all located in the Fresno area. The Rockfield plant (near Friant), of timber construction, is already being rebuilt and ultimately will be a concrete-and-steel structure with its capacity increased to 250 t.p.h.

The Roche trap rock quarry, idle for several years, is to resume operations after rehabilitation. The Lindsay aggregates plant is to receive similar treatment and will emerge with an hourly producing capacity of 200 tons. A program of modernization is planned at the Selma batching and distributing plant, while added track facilities are scheduled for the Divisadero Street bunkers in Fresno.

(*Continued on page* 91)

• Left: The East Oakland plant, with the concrete plant in the foreground, 12 storage silos and (at right) six bins for storing dried aggregates for use in packaging a dry-batched concrete mixture.
• Below: The plant at East Oakland, showing the steel skeleton of the warehouse building.



Superior Cement Installs Pulverizers To Eliminate Hand Firing

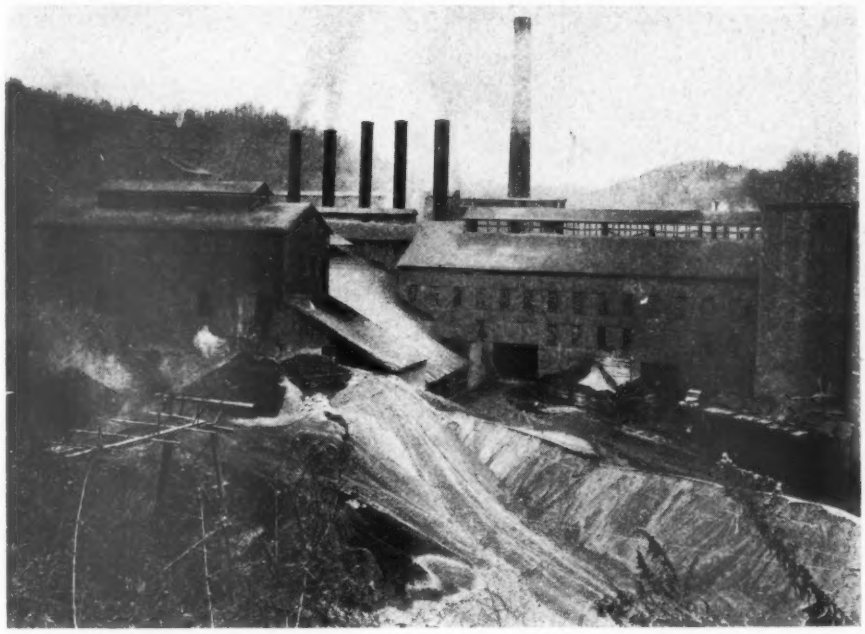
By WILLIAM M. AVERY

another ON THE SPOT report

THE Superior Cement Corporation, which operates at Superior, O., one of the oldest cement plants in the Middle West, completed about a year ago the first stage of a broad modernization program aimed primarily at effecting reduced unit cost through increased efficiency.

The plant flow sheet incorporates three single-shell rotary driers, 5 feet, 5½ feet and 6 feet in diameter by 60 feet in length, in which stone, shale and sand are dried. Two of the driers are operated continuously and the third is maintained as a stand-by unit. The quarry materials, containing two to three percent moisture in the case of stone and five to six percent in the case of shale, are reduced in a Gates No. 9 gyratory crusher and a Jeffrey hammermill before being fed to the driers, which were hand-fired up until December, 1945.

The fuel used in hand firing the driers was classified as egg coal, and it averaged approximately 15 percent ash. Some coal was inevitably broken in hand firing the driers, and in the process of cleaning fires. In addition, egg coal was often unobtainable, making it necessary to substitute mine run or slack coal. Averaging all operating conditions, the company found that about 10 percent of all fuel used in the driers was falling through the grate bars without burning. Another disadvantage of hand firing was the necessity of keeping a supply of wood on hand for starting fires during periods when the plant was operating at reduced capacity.

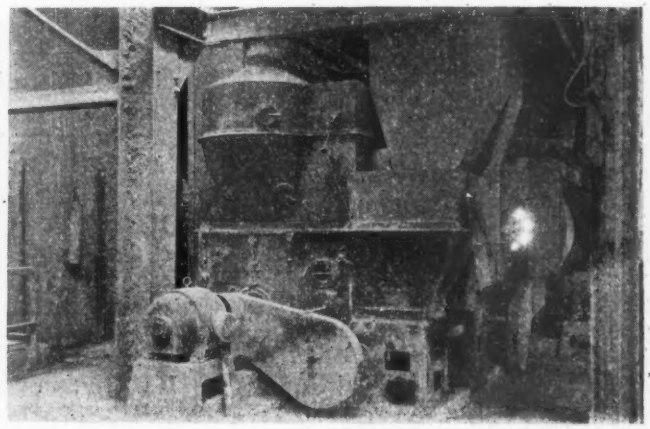


• A general view of the Superior Cement Corporation's plant at Superior, O., where a broad modernization program is now in progress.

Just a year ago two Strong-Scott pulverizers, a B-12 and a B-8, were purchased and installed for firing the three rotary driers. A grade of coal called pea and slack is now being used, and although coal consumption per ton of material dried has remained about the same, on a dollar basis fuel costs have been reduced 30 percent due to the lower cost of the grade used in the pulverizers. Labor costs in the drying department have been reduced an average of 10 percent due to the elimination of a fireman, while the capacity of the driers has been increased about one-third.

Of considerable importance from the standpoint of over-all plant efficiency is the fact that more complete drying is now possible. When delivered to the driers, stone averages 4 percent moisture and shale 8 percent. Hand firing reduced the stone to 1 percent and the shale to 2 percent. Since the Strong-Scott pulverizers were placed in operation, stone has been dried to less than two-tenths of one percent moisture and shale to less than one-half of one percent.

Considerable difficulty was experienced in finding the proper lining for the bustles, or foreparts of the combustion chambers, and several methods of laying the linings, using a variety of refractories, were tried.



• Left: A view of the No. 3 rotary drier, with the two unit pulverizers on the left. Coal flows by gravity from the overhead bin into a supply hopper above an automatic feeder at each machine.

• Right: A close-up of the pulverizers. Each machine incorporates sufficient fan capacity to handle practically all the air required to burn all the fuel pulverized.

• Three electric-powered loaders are operated in the tunnels of the underground mine. These machines are particularly suitable for operating in low headroom.

The bustles were finally lined with 6-inch, 70-percent-alumina kiln blocks, and little trouble has been encountered since.

These unit pulverizers use waste heat from the driers themselves to remove surface moisture from the coal before the fuel is pulverized. They incorporate sufficient fan capacity to handle practically all the air required to burn all the fuel pulverized, the relatively large volume of preheated air entering the machines simultaneously with the raw fuel and remaining in turbulent contact with it until the fuel-air stream is discharged to the burners. Grinding is not effected by impact, but by the impingment of airswept fuel particles upon a bed of dormant fuel in the bottom of the pulverizing chamber, the finished product being aspirated and discharged as rapidly as it becomes fine enough to be burned completely in suspension. Foreign particles remain in the bottom of the chamber, from which they can be removed from time to time as may be required. The absence of constricted areas in the machines give a high degree of protection from damage due to the presence of large metallic or nonmetallic foreign particles in the coal. The flow of fuel from the supply hoppers to the pulverizing chamber is controlled by an automatic feeder which incorporates a hand adjustment for varying the feed rate when the moisture content, size or gridability of the fuel changes.

Eventually the company plans to rebuild completely the combustion chambers of the driers. For the present a ½ inch steel plate by 4½ feet diameter and 5 feet long bustle, lined with fire brick, was added to the front of the old fire boxes to enlarge the combustion zone. A new shale drier shell has been installed and a new stone dryer shell will be installed this winter. The larger of the two pulverizing units (the B-12) has sufficient capacity to supply either the No. 1 or No. 2 drier, but the No. 2 unit is normally kept as a standby. The B-8 pulverizer feeds the No. 3 drier in which sand and shale are handled.

The unit pulverizers were installed primarily to use cheaper grades of coal, to improve drying of raw materials, and reduce labor costs in this department. All of these have been realized, plus a substantial increase in production.

Other phases of Superior's current improvement program include the complete rebuilding of the momobelt from the crusher to the bins ahead of the driers, a new Traylor 1 ft. 8 in. gyratory crusher, a new clinker conveyor belt and two new Merrick Feedoweights in the finish grinding department.

Several months ago Superior's pack house was completely destroyed by fire. Plans are already well advanced for a new 64 by 100-foot steel frame building which will be erected on the old foundation. Two St. Regis 4-tube packers and two complete dust collecting systems (one for each packing machine) will be installed in the new building.

At the mine, which is an underground operation, a new Myers-Whaley loader has been added, making three now in use. These machines are especially suitable for loading in the low (5 foot) headroom of the tunnels.

The Superior plant has a nominal rated capacity of 1,000,000 barrels annually. Although the present improvement program is directed primarily at lowering unit costs, some increase in capacity is anticipated as a result of the proposed changes. The company's offices are located in Portsmouth, Ohio, some 20 miles southwest of Superior. C. A. Reese is superintendent of the cement plant, and Morgan C. Milne is general superintendent of the company's properties at Superior.

Modernization of Erie

(*From page* 71)

Including subsidiary operations, Erie Sand and Gravel employs about 120 men in its operations. The company was founded in 1888 and has operated without interruption since that year. E. R. Shenk is president of the company, J. S. St. John is vice-president and general manager, and Albert Guianan is plant superintendent. The work of revamping the plant was carried out at a total cost of approximately $150,000. By employing both the owner's forces and several subcontractors, the project was completed in six months. E. Lee Heidenreich, Jr., acted as consultant.

Producers at N.C.S.A.

(*From page* 78)

298,000 accident-free man hours, was the Bessemer (Pa.) limestone quarry of the Bessemer Limestone & Cement Company. Ralph E. Roscoe, vice-president in charge of operations, received the award.

Mr. Curtis referred briefly to the accident prevention work of the Portland Cement Association, disclosing that the cost of its safety service to members amounts to the astonishingly small sum of 80 cents per plant per day. Sixty percent of the time of the safety staff, he said, goes into direct research work, 30 percent into the study of preventive measures and 10 percent into actual execution. The speaker paid glowing tribute to the crushed stone industry's outstanding safety record, and in particular to the industry's remarkable performance in operating throughout the year 1945 without a single fatal accident. In 1945, he pointed out, seven fatalities in the cement industry represented 42,000 man days of lost time, or more than half of the total for the year.

Principal speaker at the banquet was Colonel Jack Major of Paducah, Kentucky, who was identified in the program notes as "The Man Who Makes You Laugh." The Colonel (Kentucky brand) must have had an off night, for the crushed stone group, usually a very responsive audience, accorded him only a few restrained chuckles.

N.A.L.A. Considers Soil Problems at First Annual Meeting in Washington

another ON THE SPOT report

THE National Agricultural Limestone Association, Inc., a national organization of liming materials producers, held its first annual convention at the Statler Hotel, Washington, D. C., Wednesday and Thursday, January 15-16, 1947. The more than 125 members and guests attending were rewarded by an interesting program with many distinguished speakers. They also met the newly appointed secretary of the association, Robert M. Koch, a young man with more than ten years of experience in the liming materials industry and who was active in the formation of the association.

This meeting made it apparent that there are now two active associations covering this very important and growing field. The N.A.L.A. was formed by a group of five producers more than two years ago when there was no independent association for the producers of liming materials, and received its charter from the State of New York in January, 1945. Since then it has grown rapidly and now has 145 members in 35 states. One of the men most prominently identified with the formation of the association, Joseph Mills of New York, acted as president until August, 1946, when he resigned due to pressure of other business matters. He was succeeded by Clarence A. Munz (Eastern Rock Products, Inc., Utica, N. Y.), who had served up to that time as executive secretary. It was then decided that the association

By WALTER E. TRAUFFER

had grown so large that the load of managing its affairs had become too heavy to be handled on a voluntary basis; so the position of paid secretary was created and filled. Mr. Koch took over his duties on January 6, 1947.

D. U. Smith

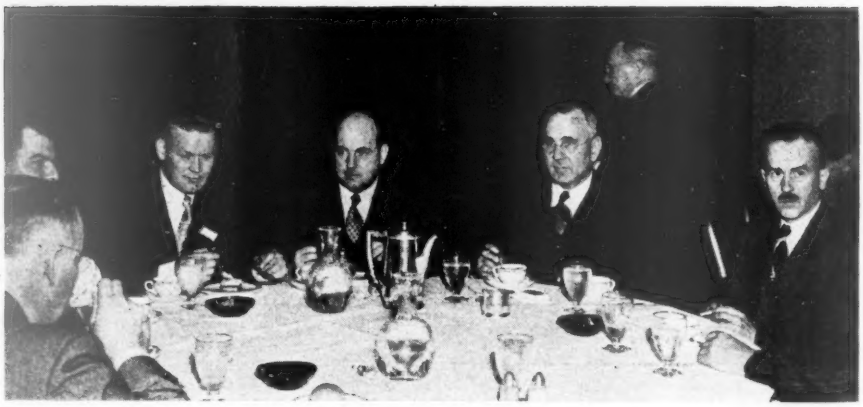
At this meeting the board of directors re-elected Mr. Munz as president, D. U. Smith (D. U. Smith & Brother Co., Ashley Falls, Mass.) as treasurer, and Mr. Koch as secretary. H. C. Gray (Standard Paving Co., Tulsa, Okla.) is the new executive vice-president, succeeding Vincent H. Shea (Allied Minerals, Inc., West Chelmsford, Mass.) A list of the new board of directors follows:

A. M. Blumer, 433 California St., San Francisco, Calif.; William Clark, Munnsville Limestone Corp., Munnsville, N. Y.; Joseph V. Clisham, The Arundel Corp., Baltimore, Md.; W. H. Cox Jr., Jesse Allen Lime Co., Nashville, Tenn.; John M. Deely, Lee Lime Corp., Lee, Mass.; Keith B. Dusenbury, Dusenbury Limestone Products Corp., Melvern, Kan.; Nicholas Farber, Farber White Limestone Co., Franklin, N. J.; H. C. Gray, Standard Paving Co., Tulsa, Okla.; Erwin Lanning, P. O. Box 308, Oswego, Kan.; D. L. McCullough, Alabama Aggregates, Birmingham, Ala.; Richard Mayleas, Patterson Limestone Products Co., Inc., New York, N. Y.; William E. Mee, Standish, Mich.; Clarence Munz, Eastern Rock Products, Inc., Utica, N. Y.; Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wis.; E. M. Prettyman, Annville Stone Co., Conshohocken, Pa.; Charles Rich, Swanton Lime

Robert M. Koch

C. A. Munz

W. C. Gray



• Left to right: Bror Nordberg, editor, Rock Products, Chicago, Ill.; Walter E. Trauffer, editor, Pit and Quarry, Chicago, Ill.; Joseph Mills, former president, N.A.L.A., New York, N. Y.; Robert Tyler, Counsel for N.A.L.A.

• Left to right: President C. A. Munz, Utica, N. Y., Eastern Rock Products, Inc.; Vice-president H. C. Gray, Tulsa, Okla., Standard Paving Company; Senator Elmer Thomas of Oklahoma; Senator George Aiken of Vermont; J. M. Deely, Lee Lime Corp., Lee, Mass.; Fred J. Sievers, director, Massachusetts Agricultural Experiment Station, Massachusetts State College, Amherst, Mass.; Representative August Andresen of Minnesota; Vincent H. Shea, Allied Minerals, Inc., West Chelmsford, Mass.

• 1947 Board of directors and officers of N.A.L.A.—Top row, left to right: Richard Mayleas, Patterson Limestone Products Corp., New York City; J. M. Deely, Lee Lime Corp., Lee, Mass.; Nicholas S. Farber, Farber White Limestone Co., Franklin, N. J.; Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wis.; Charles Rich, Swanton Lime Works, Inc., Swanton, Vt.

Middle row, left to right: V. H. Shea, Allied Minerals, Inc., W. Chelmsford, Mass.; W. J. Clark, Munnsville Limestone Corp., Munnsville, N. Y.; F. E. Roberts, Evans-Roberts, Inc., Norristown, Pa.; E. M. Prettyman, Annville Stone Co., Conshohocken, Pa.; R. M. Seifried, National Lime Co., Findlay, O.

Front row, left to right: Treasurer D. U. Smith, Ashley Falls, Mass., D. U. Smith & Brother; President C. A. Munz, Utica, N. Y., Eastern Rock Products, Inc.; Executive Vice-President H. C. Gray, Tulsa, Okla., Standard Paving Co.; Secretary R. M. Koch, Washington, D. C.

Works, Swanton, Vt.; Fred Roberts, Evans-Roberts, Inc., Norristown, Pa.; R. M. Seifried, National Lime & Stone Co., Findlay, Ohio; Donald U. Smith, D. U. Smith & Bro., Ashley Falls, Mass.; Vincent Shea, Allied Minerals, Inc., Adams, Mass.; E. T. Spidle, Montgomery Limestone Co., Montgomery, Ala.

Two luncheons and a banquet were held and these were well attended and featured well-known speakers. The reception and banquet Thursday evening was well attended by the members and their guests who included three members of the U. S. Senate and 17 Representatives, as well as many Government officials. John M. Deely (Lee Lime Corp., Lee, Mass.) acted as toastmaster and introduced the speaker of the evening and several of the distinguished guests.

Director Fred J. Sievers, Massachusetts Experiment Station, Massachusetts State College, Amherst, Mass., told about "The Agricultural Conservation Program and Our National Welfare," giving one of the most intelligent and comprehensive appraisals we have yet heard of the importance of conservation to each and every one of us. Senator George Aiken of Vermont spoke briefly on the importance of the Soil Conservation Program to his predominantly-agricultural state and to the rest of the country. He emphasized the point that in cutting our governmental expenditures we should not economize at the expense of security and of the health of our people. Senator Elmer Thomas of Oklahoma also spoke briefly in a homelier vein on the soil conservation program and pointed out the vast reserves of suitable limestone in his own state.

The Wednesday morning opening session was devoted largely to roll call, committee reports and ap-

pointments, and other routine association business. D. U. Smith, one of the five founders, then gave an "Outline of the Development of National Agricultural Limestone Association, Inc.," in which he gave a detailed picture of the founding and history of the association and a brief picture of its aims and accomplishments.

John M. Deely, in reporting on the activity of the legislative committee of which he is a member along with Mr. Munz and Mr. Smith, told of their appearance before the House agricultural committee in urging continued Government support of soil conservation. Arguments used in favor of such continued support included the rapid depletion of our soils during the period of expanded war production and the fact that the amount of liming material now used is not even enough to check the depletion of the soil. The ensuing discussion brought out the estimate that the total production of agricultural limestone in 1946 was about 23,000,000 tons, considerably under the volumes for 1944 and 1945. It was also pointed out that government payments for agstone are now being made from a $300,000,000 sum approved by the Government but not yet appropriated, and that no action has yet been taken on funds for the year beginning July, 1947.

The featured speaker on the program on Wednesday afternoon was Dave Davidson, director of the Field Service Branch, Production and Marketing Administration, U. S. Department of Agriculture. In discussing "The 1947 National Agricultural Conservation Program" Mr. Davidson commented on the progress made since the program was started in 1936 but pointed out that even the high output of recent years is less than half the 52 million tons needed annually. Over 90 percent of the agstone spread is purchased with government assistance. He also stressed the importance of educating the public on our soil needs.

According to Mr. Davidson the purchase of agstone is the largest individual expense in the conservation program which also includes the building of dams, terraces, irrigation facilities, etc., the growing of cover crops, and other related activities making for a broad and well-balanced program. He said that the present trend is toward decentralizing control of activities and expenditures and putting more authority in local hands. As a result costs are being spread to meet the individual needs of each community rather than of the country as a whole. In order to spread the available funds as far as possible and because farmers are becoming increasingly aware of the importance to them of liming their soils, there has been a gradual reduction of the percentage paid by the Government. In 1943 the farmers paid only 20 percent of the cost of the liming materials used. For 1946 the average was at least 30 percent, and about 40 percent will be asked of the farmers in 1948. Assistance has also been reduced on other practices as these began to carry their own weight.

In explaining this plan of action Mr. Davidson said that no payments were ever made on the spreading of manure as this was a conservation practice which was already routine with the farmers. The program, he said, is designed to aid and encourage the farmer in practices with which he is not familiar or which he might not be able to afford. Each practice is evaluated and given the needed impetus and as many as possible are localized so that each locality can determine its own major problems.

In closing Mr. Davidson urged producers to do more direct selling to the farmer and to use the purchase order plan only when necessary. The Government, he said, has no desire to make direct distribution of the lime a part of its functions but is only interested in making liming materials available to those not otherwise able to get it. He suggested that the industry make efforts to find new sources of lime closer to areas of need and to spread the liming season over as much of the year as possible.

In the ensuing discussion it was brought out that the cost of agstone has gone down 25 percent since 1942, almost entirely due to the 12-month program which has made for economical production. It was pointed out that there is again a trend toward uneven deliveries and that this will increase production costs. Mr. Davidson said that this matter is being worked on in all areas but has only been fully accomplished in some of them. On the purchase order plan opinions were divided but there seemed to be agreement on the fact that each district must make its own decision based on its needs.

The directors of the five regions of the Field Service Branch then gave outlines of the programs in their regions.

According to John H. East, director of the East Central Region, comprising seven states, about one-third of the allotted funds go for liming. In 1946 about 4½ million tons of agstone were purchased under the program, compared to less than 500,000 tons for the 1931 to 1935 average. It is estimated that more than 9,300,000 tons annually are needed to maintain the soil in this territory at its present fertility. Mr. East stressed the need for greater production of agstone and

• Left to right: Leonard Fry, Fry Coal & Stone Co., Mercersburg, Pa.; Dr. C. W. Whittaker, Bureau of Plant Industry, U. S. Department of Agriculture, Beltsville, Md.; Director F. E. Roberts, secretary-treasurer, Evans-Roberts, Inc., Norristown, Pa.

• Left to right: Don Maxwell, Washington, Ia.; Guy Mauk, Whiterock Quarries, Bellefonte, Pa.; J. C. Kimberly, director's office, Field Service Branch, P. and M. A., U. S. Department of Agriculture.

said that this would come as more equipment is available for its manufacture.

Allen J. Manchester, director of the Northeast Region, told of the early difficulty of selling the use of agstone to the farmers. Now, he said, 90 percent of the professional farmers in this territory use it. The program has made it possible to reach the farmers who need it most. Liming, said Mr. East, is the first of a chain of steps which are revolutionizing farming practices. Superphosphate, he said, is useless without agstone, and legumes won't grow without both. Soil erosion cannot be effectively stopped without good vegetative cover, etc.

In the Northeast Territory the annual need is for about 6 million tons of agstone annually; present use is only half that and about 400,000 tons of this is bought direct by the farmers outside the program. Purchase orders are used on other fertilizers but not on lime which is all private enterprise under the contract system and which results in the best possible yearly distribution pattern.

In the absence of Guy M. Smith, director of the North Central Region, due to illness, the report for this area was made by William Chandler. This region, comprising ten states, spread 14 million tons of agstone, 92 percent of it under the program. In 1946 about half the total amount placed under the program was by contract and the other half by purchase order. Only Ohio and Illinois used the purchase order plan in 1946 but Indiana began using it in 1947. The choice is left entirely up to the farmer and the agstone producer. About 25 million tons are needed annually in this area to maintain existing soil conditions.

Mr. Chandler commented on the desirability of reducing the amount paid per ton by the government as this will make possible the wider application of the available funds and the need for more attention to erosion, which is an important problem in this area.

According to Thomas L. Ayers, director of the Southern Region, which extends from the Atlantic west to Texas and Oklahoma, this area contains 100 million acres of crop land and over two-fifths of the farm population of the United States. Low income is the major problem in the eastern section of this region as the land there is old, and conservation alone is of little help as most of the soil has already been robbed of most of its minerals. The purchase order plan is of necessity used in this area and only about 2 million tons are placed annually in spite of the need for ten times that amount. Mr. Ayers said that a larger part of the funds available for this region must be spent on minerals if any appreciable results are to be obtained.

The Western Region, according to Earll H. Nikkel, acting director, comprises 43 percent of the area of the United States, but uses only a small amount of agstone and most of that in Kansas. By cooperation between the farmers and the industry the use by that state reached a peak of 880,000 tons in 1946. On the West Coast, according to Mr. Nikkel, there are few good limestone deposits and these are far from the areas of need, resulting in high transportation costs.

On Thursday morning was held a regional panel discussion on operation of the conservation materials program in various sections of the country. Representing the East Central Region, Bruce M. English of the Field Service Branch, said that the contract method is the best way to get agstone into some areas while the purchase order plan is better in others. The various state groups must conform to certain general rules but are being given an increasingly freer hand in order to obtain the best possible distribution. In answer to a question he said that, to counteract any possible effect that the decentralization program might have on year-around distribution, every effort is made to show the farmer that he can get more material by being willing to take deliveries throughout the year.

• Left to right: A. W. Manchester, director of Northeast Region, Field Service Branch, P. and M. A.; Director V. H. Shea, Allied Minerals, Inc., West Chelmsford, Mass; N. E. Dodd, Under-Secretary of U. S. Department of Agriculture; President C. A. Munz, Utica, N. Y., Eastern Rock Products, Inc.; Dave Davidson, director of Field Service Branch, P. and M. A.; J. H. East, director of East Central Region, Field Service Branch, P. and M. A.; Director E. M. Prettyman, Annville Stone Co., Conshohocken, Pa.

• Group at right: Grant Thompson, assistant director of Field Service Branch, P. and M. A.; R. H. Nolan, Nolan Stone Co., Rome, N. Y.; K. M. Banks, Worlock Stone Co., North Tonawanda, N. Y.; J. H. East, director of East Central Region, Field Service Branch, P. and M. A.

For the Northeast Region Everett H. F. Felber of the Field Service Branch said that while there is a shortage of agstone it is easy to get the farmer to take deliveries at any time but that with plant capacity increasing it is difficult to convince him even with the certainty that seasonal distribution will cause higher prices. According to Mr. Felber it is the field representative's responsibility to see that the county committees keep to the 12-month plan, but he said that producers can help materially to keep selling this plan. In some sections producers are meeting with state committeemen to discuss this problem; in one meeting in Indiana more than 500 attended, including producers, truckers, farmers and committeemen. In the northern states, he said, producers favor a 10-month season, as they like to overhaul their plants in January and February, and the most economical producing season is from June through November.

In the Northeast Region, said Mr. Felber, the requirements are generally for finer material than in other regions but there is considerable variation in the different states, some running as fine as 100 percent through 10 mesh.

According to Howard M. Doerr of the North Central Region no two states in this area agree on fineness. In some cases where producers must deliver to three states they must grind to the finest requirement, thus unnecessarily increasing the cost of production for the others. In the Southern Region, according to C. J. Stevenson of the Field Service Branch, there is a shortage of agstone in every area and the production is only 1½ million tons where there is a need for 10 million tons.

In the Western Region, which consists of 13 states, most of the agstone is used in Kansas, with some demand in Washington, Oregon and California, according to A. O. Kelly. Most of this is sold on the contract plan.

One producer told of his experience with spreaders, which seem to fit in best under the contract plan. He first bought five trucks and set up a delivered price by townships. Then the trucks were sold to truckers. In this way he spread 30,000 tons in 1946 with 13 trucks which deliver up to 50 miles from the plant. Once the company got this system started the truckers were willing to carry it on as long as they were kept busy under the contract plan. The spreading is done for an added charge varying from 40 to 75 cents per ton in the area described.

"Our Annual Liming Needs vs. the Annual Liming Material Used" was the subject of an address by Dr. C. E. Carter, Field Service Branch, Production and Marketing Administration, U. S. Dept. of Agriculture. According to Dr. Carter agronomists do not all agree on exactly how liming material is beneficial to the soil, animals, etc., but they do all agree that it is beneficial. They are even less agreed on the fineness requirements but it seems evident that different finenesses are required for different types of soils. It is found that even some of the alkaline soils benefit from lime and much needs to be learned about this. He also pointed out that liming materials form the No. 1 need of soils and that they must be used before the other parts of the conservation program can be of much help.

Dr. Carter then presented two tables which are the result of five years' work by the department. They are, he said, complete for all except three states. One table shows the limestone requirements by states with marl and lime figures on their agstone equivalents; these are 38,221,138 tons for crop land and 14,047,544 tons for pasture, or a total of 52,268,682 tons. The other table gives the agricultural limestone consumption by states from 1929 through 1945. The consumption in 1929 was 3,807,852 tons. The low point was reached in 1933 with 1,547,912 tons, and the high in 1944 with 24,557,388 tons. The 1945 volume was 23,023,104 tons. An interesting fact revealed in this table is that the North Central Region, consisting of Illinois, Iowa, Indiana, Michigan, Minnesota, Missouri, Ohio and Wisconsin, has usually used more than half the total each year and that in some years it used nearly two-thirds of the national total.

In explaining these tables Dr. Carter said that as more is known about local requirements the estimated requirements increase. Local needs vary considerably. In Maine, for example, the potato land requires only one ton per acre annually over an 8-year period. If more was used to meet the apparent need the benefits would be lost. Similar conditions exist in Virginia but in the Middle West from 3 to 4 tons per acre are applied annually with successful results.

According to Dr. Carter, as research, experience and data accumulate the needs of each locality become more clearly defined and the estimates are adjusted accordingly. Behind the program, he said, is the greatest educational force ever known in this country. More people are teaching the need for lime than any other one thing. It must be remembered that the soil is our most important natural resource and its conservation is our most important problem. The agstone industry, said Dr. Carter, is the key to this problem and therefore a highly essential industry. He again emphasized the fact that more productive capacity is needed in most areas.

Importance of Agstone

(*From page* 81)

undernourished nations to precipitate major wars.

Dr. Scarseth urges the use of modern business methods in agriculture as a solution for the present folly of food production carried out with too much bad farming on too much poor land with too much effort. He cited the production of 20 bushels of corn per acre of land in Georgia as an outstanding example of the penalty exacted by poor farming. With adequate technology, the yield could just as well be 200 or perhaps even 300 bushels per acre.

In agriculture, the speaker went on, we still follow traditional patterns. Although crop yields are being maintained to some extent by the employment of improved technology, the mineral content of the land has been dropping steadily. As an example of this steady depreciation, he pointed out that only three percent of the phosphate removed from the soil each year is being replaced.

Reversal of this threatening trend, Dr. Scarseth concluded, calls for wide education and great resourcefulness, and the general acceptance of a philosophy of abundance as a substitute for the defeatists' philosophy of scarcity.

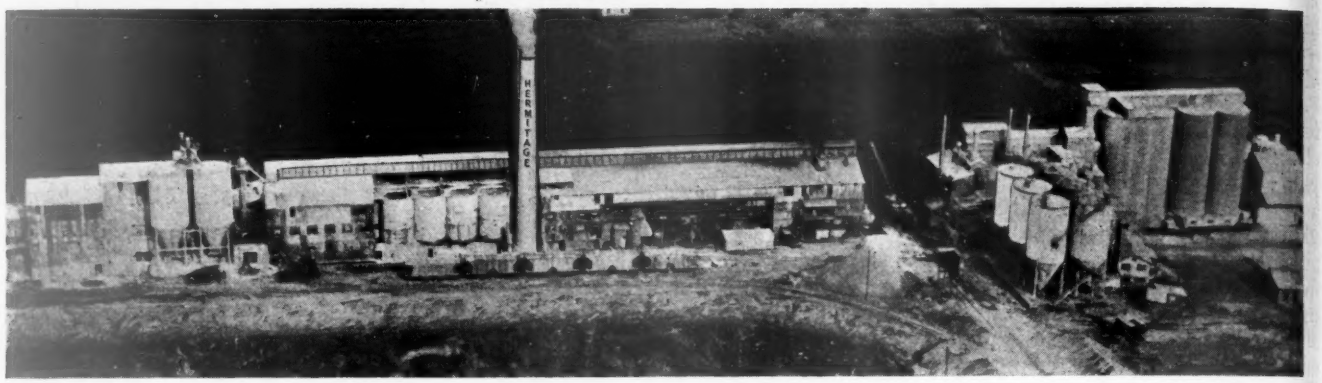
Construction and Modernization

(*From page* 84)

J. R. Cassidy, general superintendent at San Francisco for more than a decade, will be placed in charge of the new Fresno district, as it is to be known.

The company is headed by the following staff or officers; R. K. Humphries, president; E. J. Goodpastor, executive vice-president; W. L. Neil, secretary-treasurer; Donald Meek, vice-president in charge of sales; R. R. Bush, purchasing agent; H. E. Keifer, sales manager, aggregates and ready-mixed concrete division; G. F. Hampton, chief engineer; J. R. Cassidy, production manager.

Marquette Acquires Tennessee Cement Facilities and Limestone Quarry



• The Hermitage Portland Cement Company's plant, located on the outskirts of Nashville, Tenn., which was recently purchased by the Marquette Cement Manufacturing Company, to be operated for the continuing Hermitage company.

THE Marquette Cement Manufacturing Company has purchased the plant of the Hermitage Portland Cement Company, at Nashville, Tenn., and that of the Cumberland Portland Cement Company, at Cowan, near Chattanooga, Tenn., and will operate these two plants for those respective companies.

Both the Hermitage and Cumberland companies will remain intact, differing only in new incorportation, and will continue to operate under their original policies, brand names and with essentially the same personnel. The products of each company however, will hereafter be manufactured under the direction of the Marquette Cement Manufacturing Company.

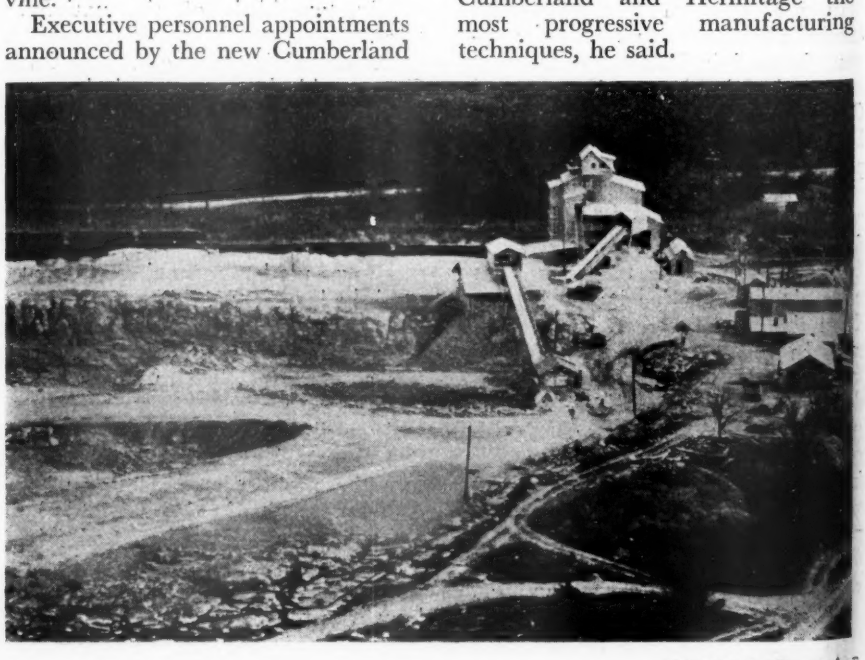
At the same time Marquette purchased a limestone quarry at Martha, Tenn., as a source of raw materials for the Nashville plant. This quarry, formerly owned by the Middle Tennessee Stone Company, produces a better quality limestone than that formerly quarried at the plant site, and tests indicate that it may result in a better cement. The old sources of limestone raw materials are being abandoned. Middle Tennessee Stone Company will continue to operate its commercial stone and agricultural limestone business at Martha.

The Hermitage plant was first established at Nashville in 1923; and the Cumberland plant at Cowan went into production in 1927. Both have since been in continuous operation. Each has a rated total annual clinker production capacity of about 900,000 barrels. Standard portland, high-early strength, air-entraining and masonry cements are produced. The combined market of these plants covers a large portion of the Southeastern states.

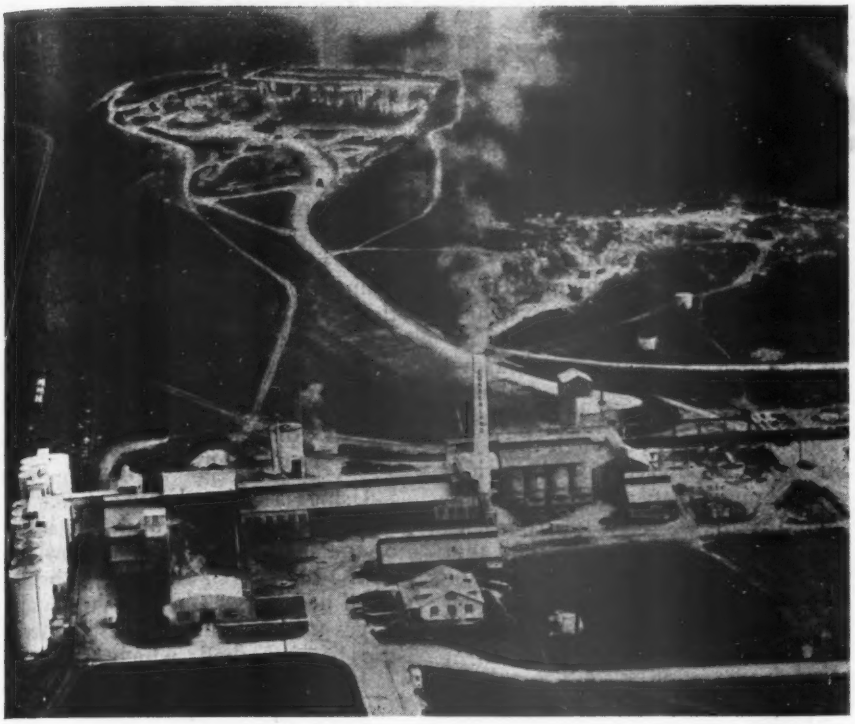
With the purchase it was also announced that E. W. McGovern, formerly sales manager and director of the Hermitage Portland Cement Company, has been elevated to the office of president of that company. Cecil Sims, prominent Nashville attorney who has long been retained as Hermitage legal counsel, is now vice-president, and R. C. Jones continues as secretary-treasurer. Hermitage headquarters will remain in the American Trust Building, Nashville.

Executive personnel appointments announced by the new Cumberland company include the promotion of Frank Pearson from vice-president to president. P. T. Crownover, former Decherd, Tenn., resident and veteran of over 25 years in the cement industry, has been appointed vice-president and sales manager. C. J. Hines will continue as Cumberland's secretary-treasurer. The Cumberland sales staff within a short time will establish general offices in the Chattanooga Bank Building at Chattanooga.

In assuming ownership of these manufacturing plants for his company, Marquette's President W. A. Wecker emphasized that, while Marquette would direct manufacturing operations at the Cowan and Nashville plants, each company would maintain its identity and sales independence, with virtually no change in personnel or policies. Marquette's direction of production, based on the 50-year-old industrial experience of that company, will simply assure for Cumberland and Hermitage the most progressive manufacturing techniques, he said.



• A view of the quarry at Martha, Tenn., newly purchased by Marquette from the Middle Tennessee Stone Company as a source of limestone raw material for cement manufacturing operations which Marquette will carry on for the Hermitage Portland Cement Company. (The stone processing plant here remains the property of the Middle Tennessee Stone Company.)



• A general view of the Cumberland Portland Cement Company's facilities at Cowan, Tenn.

The cost of the two plants and the new quarry at Martha, Tenn., was $4,000,000, plus all working assets at cost. To finance the acquisition, Marquette borrowed $5,000,000 from private sources and will undertake to repay the loan at the rate of $250,000 per year for 20 years. Interest rate on the first 10 years of maturities is at 2¼ percent and at 3¼ percent on the remainder. Average weighted interest cost is 2.99 percent per year for the 20-year period.

Minnesota Producer's Two Plants Increase Output with New Crusher

USING a new Pioneer triple-roll crusher as a secondary at its No. 2 plant, the Roverud Construction Co., Spring Grove, Minn., is maintaining an imposing daily production record of 1,300 tons of crushed stone at the two quarries in operation near Mabel, Minnesota. The products consist of ¾-inch crushed stone and agricultural limestone.

The quarries are supplying concrete aggregate and shoulder material for 13 miles of paving being laid from Spring Grove to Prosper, Minn., by Anderson & Sons, Inc., paving contractors of Minneapolis. Approximately 40,000 tons of concrete aggregate and 30,000 tons of shoulder material will be furnished for this contract. To facilitate the moving of the concrete aggregate, a track-side washing plant has been set up at Mabel, using a Pioneer scrubber powered by an International 50-hp. diesel engine. A Novo pump supplies the water from a near-by source.

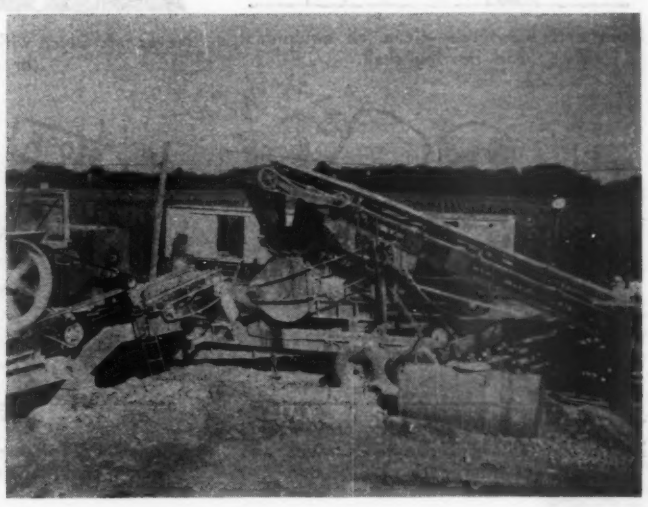
Plant No. 1 is producing 600 tons of ¾-inch material daily for use on the shoulders of the paving project.

Plant No. 2 is producing 700 tons of aggregate and agstone daily, using the new Pioneer triple-roll crusher powered by a Cummins diesel engine, as the secondary crusher.

Roverud Construction Co. is operated by the Messrs. G. A., N. A., and C. G. Roverud and Karl Hoegh.

The Pioneer triple-roll crusher has three rolls with manganese steel shells. The extra roll is mounted over the stationary roll in such a position that the rock is fed into the opening between the top roll and the stationary roll and then passes between the stationary roll and the horizontal floating roll.

• Left: Roverud's latest installation at the No. 2 plant, a Pioneer triple-roll crusher. Right: The same plant showing the initial setup.



Increase in Car Loadings Seen in Jan.-March Period

Freight car loadings of cement during the first quarter of 1947 are expected to be 22 percent above those in the corresponding period of last year, according to estimates compiled by the 13 shippers advisory boards and made public by the Association of American Railroads.

On the basis of the estimates, car loadings of cement will total 126,505 in the first quarter of the current year, as compared with 103,722 actual car loadings in the same period a year ago. During the same quarter, car loadings of gravel, sand and stone are expected to increase 12.2 percent, from 266,377 to 298,896; car loadings of brick and clay products are expected to jump 18.3 percent, from 55,273 to 65,409; and car loadings of lime and plaster are expected to rise 2 percent, from 32,601 to 39,446.

How to Pour Bearings—Fundamentals For Guiding Shop Men

By K. T. MacGILL
Manager, Babbitt and Bearings Division
Joseph T. Ryerson & Sons, Inc.

FUNDAMENTAL in the making of good bearings is the selection of an alloy having the proper physical properties, hardness and compressive strength, freedom from segregation, and good grain structure. Aside from the fact that the selection of such an alloy is a necessity in order to secure dependable, long-life bearings, the procedure followed in casting is also tremendously important if good bearings are to result. Even the best babbitt can fail in service if a few fundamental pouring rules are not followed.

For every large plant or shop that is completely equipped for pouring bearings, and staffed with skilled maintenance men who have had considerable experience in casting babbitt, there are dozens of other plants that follow no established routine in pouring the relatively few bearings that they are called upon to produce each year. The task may be delegated to an inexperienced workman, or perhaps to anyone in the shop who happens to have time on his hands. Under such circumstances, all too often the results fall considerably short of the near 100 percent job that could be secured.

There are many ways in which bearings can be poured, with assurance of equally good results. However, experience has proved that if the basic principles of heat transfer from molten metal through the bearing shell are observed, good bearings with lining tight against the shell should be obtained, regardless of the particular set-up or method that is followed. The average plant or shop usually has or can readily devise the equipment and fixtures that are required. From this point on, it is necessary only to follow a few simple, fundamental rules.

Purity of Bearing Metal

It pays always to use new babbitt, made of virgin metals. When you have decided upon the proper grade for the service involved, do not mix with reclaimed or scrap metal of unknown analysis. While it might appear that re-using old metal is one way to save on bearing costs, it is seldom wise to try to economize by mixing old, used metal with new. Too often dirt or other harmful foreign matter will be included, or metals of unlike analysis may not produce the dense, close-grained structure required successfully to resist wear. If a sizable quantity of old metal is accumulated, this can be used for pouring secondary bearings where loads are light and the performance required is less exacting.

Cleaning and Preparing Equipment and Shell

Using a wire brush, clean all equipment, fixtures and the inside of the shell thoroughly. Follow this with a blow torch and further brushing if necessary. The blow torch also serves to drive out all moisture from the bearing shell, which is important. The mandrel should be as thin-walled as possible, with ends closed with wood plugs to prevent heat loss.

Put a waste head on top of the shell. This takes care of the problem of shrinkage as the bearing solidifies, assuring sufficient metal to completely fill the bearing area. The waste head is made of a putty-like substance that is especially prepared for the purpose, and as it does not dry out, it may be used over and over. The height of the waste head depends upon the size of the bearing, larger bearings requiring more excess metal at the top to make up for shrinkage.

Editor's Note: During the course of a survey made by the babbitt and bearings division of Joseph T. Ryerson and Son, Inc., it developed that many plants using babbitt in relatively small quantities, were lacking in information that would enable them to pour bearings with assurance of uniformly good results. Hence this article.

Brush and blowtorch—clean all equipment and bearing shell.

Never mix Glyco with any other metal, alloy or scrap.

Have enough metal to pour the entire bearing at one time.

The closer the better—so as to prevent heat loss in the ladle between the furnace and the bearing.

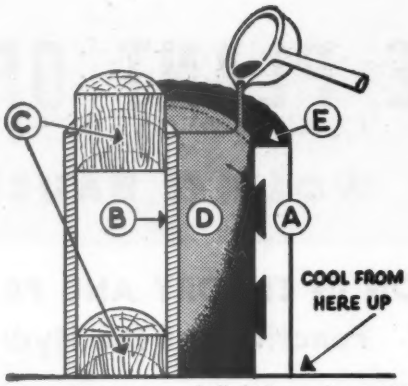
A small dry pine stick should burst into flame on instant contact with Glyco.

Stir before pouring. After pouring, cool with wet rags or water from the bottom up.

Melting the Bearing Metal

Before you start to melt, make sure that you have sufficient babbitt to pour the entire bearing at one time. This is necessary in order to secure a dense and completely uniform structure. The melting pot should be placed close to the work . . . the closer the better. This will prevent heat loss in ladle as the molten metal is transferred from the pot to the bearing fixture.

Follow the manufacturer's recommendation for correct pouring temperature. Generally speaking, a temperature of from 850 to 950 deg. F. is sufficient. After the babbitt is completely molten, the best pouring temperature is related to the thickness and size of the bearing being poured. The metal should pour about like water. Heating to a slight excess is not harmful . . . the only disadvantage being the accumulation of a higher percentage of dross resulting from oxidation. Thick, heavy bearings can be successfully poured at a lower temperature than bearings that are long and thin. The metal must be hot enough to reach the bottom of the mold and start to build up before any sign of setting occurs. One simple method of checking to determine if the metal has reached the correct pouring temperature is to insert a small, dry pine stick in the pot. It should burst into flame immediately upon contact with the hot babbitt.



Warm the bearing shell (A) to about 200 deg. F. to drive out all moisture. Use thin-walled mandrel (B) where possible, closing ends with wood plugs (C) to prevent heat loss. Fill the bearing area (D) with molten metal up to the top of the waste head (E). Cool the bearing shell with water or wet rags from the bottom up.

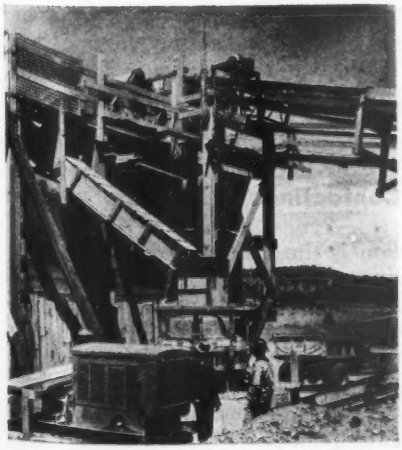
Pouring the Bearing

Before starting the pouring operation, warm the bearing shell to a temperature of about 200 deg. F. As previously stated, this serves to drive out all moisture and also prevents too quick or non-uniform solidification of the molten metal.

Fill the space completely and as rapidly as possible, continuing pouring until the top of the waste head is reached. Cool the bearing shell by applying water or wet rags, starting at the bottom and working slowly upward. By thus drawing the heat outward, the metal starts to solidify at the inside surface of the shell, adhering tightly to the wall. As the babbitt sets and contracts in this area, the void is filled with hot metal from the mandrel side which in turn is fed from the surplus metal provided by the waste head at the top of the shell.

When the metal has completely cooled and set, if the bearing has been properly poured the mandrel should not stick but should free itself from the fixture with little effort.

While conditions and facilities will vary from shop to shop, nevertheless, if the foregoing simple, basic rules are followed there is no reason why every bearing produced should not be sound, dependable and capable of giving the long, trouble-free service that is expected of it.



Left: A general view of the Klamath County crushing plant, 18 miles east of Klamath Falls, Ore., powered by two "Caterpillar" diesel D8800 engines and one 30-kw. D4600 electric set. A Cedarapids 20- by 36-inch jaw crusher and a 36-inch Symons cone crusher are powered by one engine each. The electric set powers three conveyor motors—one 20 hp., one 15 hp. and a third 5 hp. The average output is 65 cubic yards of 1-inch and 16 cubic yards of 1½-inch road surfacing rock per hour.

Below, right: Rock being dumped into the feeder of the jaw crusher.

Below, left: A closeup of the reduction crusher, showing the Symons cone crusher (center) and the screen (above), fed by the conveyor from the primary jaw crusher. A truck has just been loaded.

THE LIME PLANT OPERATOR

BY WOLF G. BAUER

HYDRATION IN THEORY AND PRACTICE

Part III Functions of the Hydrator

Wolf G. Bauer

HAVING previously defined and discussed some of the basic reactions which develop and must be controlled in the process of hydration, we can now focus our attention on the devices and machines which carry out lime hydration in a more or less economical, controlled, and suitable manner.

Whereas most lime-consuming industries hydrate, or slake, the lime in equipment designed to produce a lime sludge or milk, the lime plant is generally interested only in producing calcium hydroxide in the form of a dry powder. Compared to the former equipment which is designated as "lime-slaking" machinery the process units used by lime works are called "hydrators." This is in line with our usual differentiation of wet and dry methods, designated as slaking and hydrating respectively.

First of all let us take the mystery out of the hydrator. There is probably no piece of processing equipment in the lime industry which is easier to design, and which will give greater satisfaction and assurance of some measure of success, than this, to the layman, most mysterious piece of chemical processing machinery. The writer does not imply by this that all so-designed hydrators cannot be materially improved, nor does this statement embrace the whole hydration "system." But as a whole, anyone who has mixed some crushed quicklime and water in a pail to the point where the particles stick wetly together, and then, while stirring, watched the gritty mass steam-boil and fluff up into a fine white powder, has realized that the ordinary hydrator, *per se,* is nothing but a commonplace mixer or agitator, be that a mixing screw, rotary cylinder or pan with plows, or a rotating shaft with paddles inside a cylinder.

If we carry on a little further, and gently blow the fine hydrate powder out of the pail, there will finally be left some coarser grit on the bottom. This unreacted material may be core, overburned and fluxed lime, or quicklime which did not come into contact with water or steam. In our crude procedure, we may also have blown out some intermediate sizes consisting of particles of lime which reached very high reaction temperatures due to insufficient cooling air, cooling water, or cooling surface, and therefore did not combine with the water at the time of hydration. Upon examining the results of our pail hydration and separation, it should not be too difficult, even for the uninitiated, to draw up some basic rules to observe in designing for the mechanics of hydration.

Major Functions Of the Hydrator The hydrator comprises the first and most important phase of the hydration system. Its function is to contact controlled quantities of lime and water with each other under controlled conditions of mixing, contacting, temperature, time, and phase relationships, and to deliver its products to the secondary processing or milling system.

Five distinct functions may be assigned the hydrator: (1) Feeding, (2) Lime Wetting, (3) Mixing, (4) Hydrating and Steam Curing, (5) Drying. In this issue we shall discuss the first two functions. In a well-designed hydrator, each one of these five distinct phases is under manual or automatic regulation. A sixth function is lime dust recovery, and although this is not actually an essential part of the process, it nevertheless is worth considerable design and engineering attention, both for the sake of operating economy and dust-nuisance abatement.

Feed Proportioning This depends on whether the system is batch or continuous. Measuring hoppers for both lime and water are used with batch systems. Generally the lime hopper is placed or hung on a weighing scale, while the water is proportioned by volume. In continuous systems, lime and water are continuously proportioned by volume through adjustable feeders and valves in many installations, although some feeders are controlled by balancing scale deflections according to the weight of a section of material and conveyor-feeder. Since crushed lime is not always very uniform in particle size distribution, this latter weight method is often to be preferred.

There are several factors affecting variations in the amount of lime fed to a continuous hydrator, some of these variables occurring regardless of whether a constant-weight, or a constant-volume feeder is employed. Factors affecting lime quantity when fed from volume feeders, include particle-size distribution due to crushing and bin segregation, core content, and variations of lime density due to burning shrinkage. On the other hand, constant-weight feeders cannot be relied upon to compensate for heavy core in lime; and so, even though a weight basis is logical and correct for feeding lime to hydrators, it is not altogether foolproof.

Water can be regulated quite easily on a continuous-feeding basis. However, pressure must be kept constant. When possible pressure variations may be introduced due to other plant demands, manual operation is best relied on through the use of a meter indicating volume flow. When water regulation is automatic, pressure variations are not detrimental.

Water-Lime Contacting One of the most important and crucial phases of dry hydration is the uniform continuous wetting of each particle of lime. This is a much neglected point in many hydrators. We have already shown in the preceding article how seriously the uneven wetting of lime particles affects hydration temperature and lime quality.

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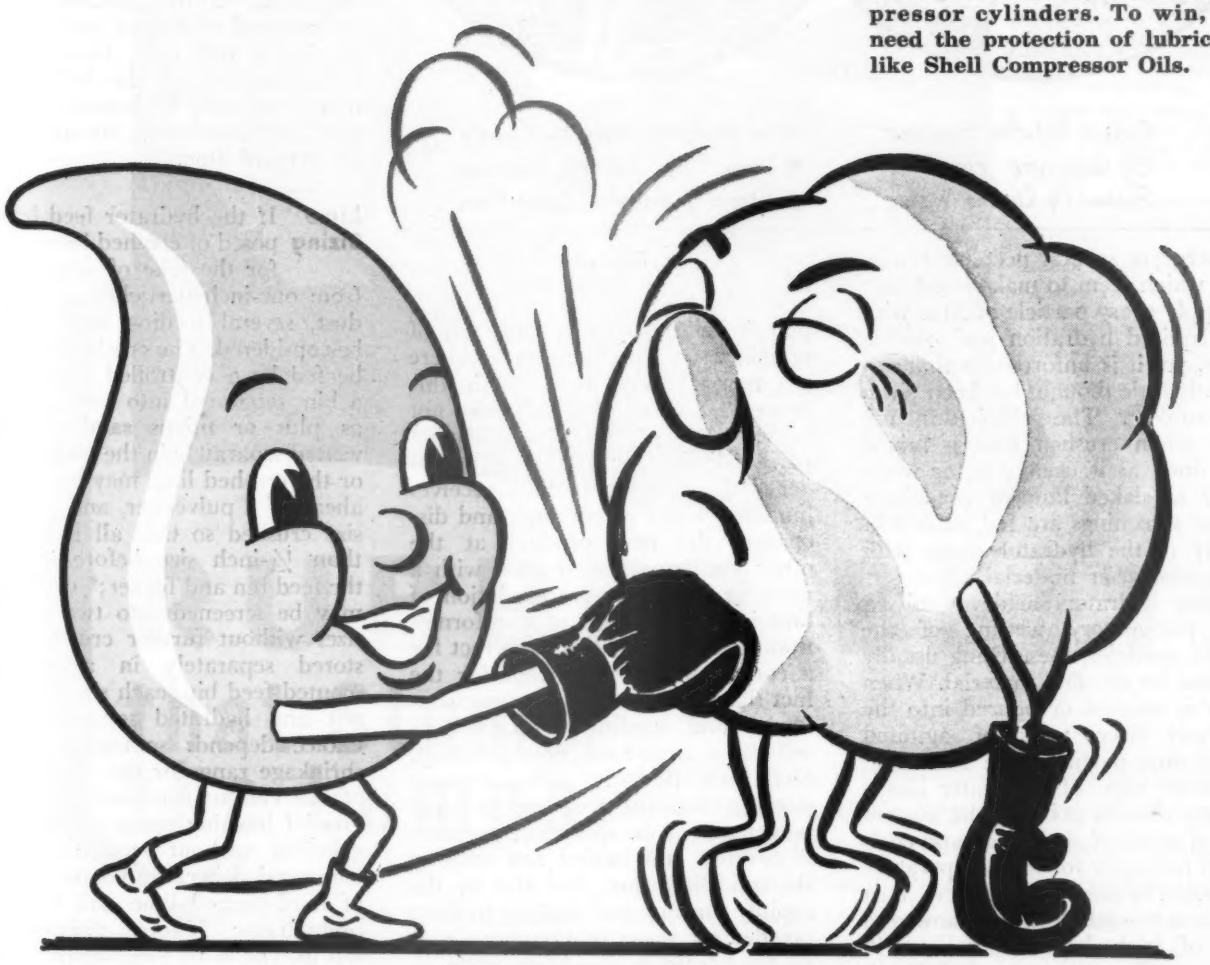

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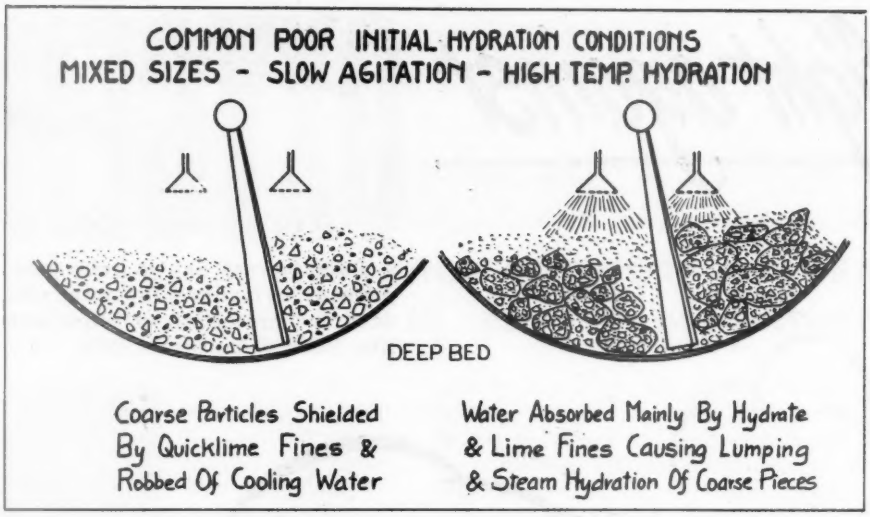

COMMON POOR INITIAL HYDRATION CONDITIONS
MIXED SIZES - SLOW AGITATION - HIGH TEMP. HYDRATION
DEEP BED
Coarse Particles Shielded By Quicklime Fines & Robbed Of Cooling Water
Water Absorbed Mainly By Hydrate & Lime Fines Causing Lumping & Steam Hydration Of Coarse Pieces

Figure 1

There are several peculiar conditions which seem to make it difficult to supply every particle of lime with the required hydration and cooling water, yet it is unfortunate that apparently little thought has been given this subject. The chief difficulty arises when crushed lime is mixed with fines, as it usually is, or when partly air-slaked lime or sweepings, or fine screenings are fed indiscriminately to the hydrator along with fresh or coarser material.

Many hydrators achieve only a very perfunctory wetting of the coarser particles, these being usually shielded by the fine material. When water is sprayed or poured into the relatively deep mass of agitated mixed lime particles, the fines tend to absorb most of the water like a sponge, thereby robbing the coarser ones of water of absorption and cooling so necessary for low-temperature hydration in these larger pieces. Last month we pointed out the how and why of high heat generations in pieces of lime, even when full absorption-water is soaked up. But when these particles receive only steam for hydration, the result is doubly injurious to hydrate quality. Many designers have ignored this point altogether, believing that a good water spray or after-mixing is all that is necessary. This is especially unfortunate when large drum hydrators without pre-mixers are employed. Since the trick and mechanics of contacting lime with water, rather than steam and vapor, is of primary importance, it may be worth our while to look a bit closer into this preliminary phase of dry hydration.

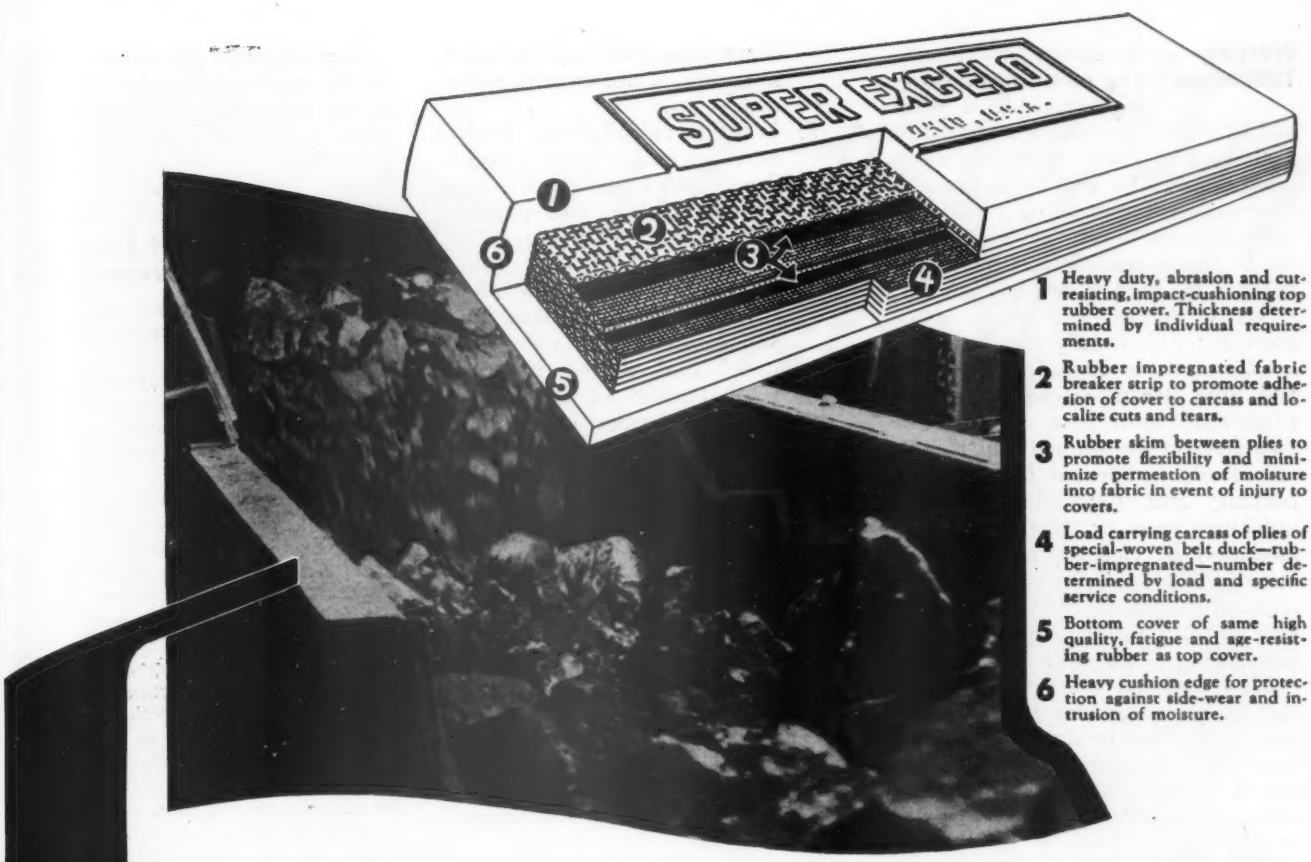
Common Faults Adding water to the quicklime in the same portion of the hydrator in which further hydration is carried on seems to be an accepted procedure in many continuous machines that do not incorporate some sort of premixer or prehydrator. There are many serious faults with this procedure, many of which may not be too obvious. When a revolving pan, cylinder, or stationary cylinder with revolving paddles receives lime and water at one end, and discharges the new product at the other, the apparatus is filled with a more or less successive gradation of lime in various stages of transformation. Theoretically this is correct for a continuous device except for the fact that the mass behaves somewhat like a fluid, tending to establish itself on a near-level flow gradient. Since this flooding action extends partially into the feed end, a large percentage of the quicklime particles is covered and buried not only by the quicklime dust, but also by the rapidly forming and flowing hydrate powder. If water is, therefore, as it so frequently is, made to pour or spray on top of this mixture, there is little opportunity for the larger lime particles to receive complete hydration water, let alone cooling water. This is aggravated as the depth of bed is increased by an overflow baffle placed in the discharge end of the drum. Trying to perform the five major functions of the hydrator in a single drum is not only crude and haphazard, but ignores these functions and their control.

Often a single pipe with open end is used to introduce milk of lime from a spray stack, when it is obvious that even a well dispersed and strong water spray arrangement is only wishful thinking in the instances where such water is added to lime in slowly-agitating, deep-bed, hydrating drums. Figure 1 shows the mechanics of such hydrator mixing and hydrating action, which can readily be ascertained by removing a section of lime mass at this feed point from such machines. What is the remedy? The remedy is to divorce and separate hydration from initial mixing, and mixing from initial wetting. Just as in the case of lime calcination, every lime exhibits and possesses certain peculiarities which must be taken into account for successful processing. Hydration is no exception, and the equipment should be designed or altered best to fit the particular material. However, the basic functions of the hydrator remain, and must be brought into full play and regulation, irrespective of the type of lime.

Lime Sizing If the hydrator feed is composed of crushed lime, which, for the sake of argument, is from one-inch particle size down to dust, several feeding methods may be considered. The crushed lime may be fed by a controlled feeder from a bin, separated into two sizes such as plus or minus sand size, and wetted separately in the prehydrator; or the crushed lime may be screened ahead of a pulverizer, and the oversize crushed so that all lime is less than ¼-inch size before going to the feed bin and feeder;* or the lime may be screened into two or more sizes without further crushing, and stored separately in a compartmented feed bin, each size being fed out and hydrated separately. The choice depends somewhat on the shrinkage range or the core content of the various fractions. If the degree of burning range is large, pregrinding without separation is recommended because coarse particles of hard-burned lime will leave the prehydrator before disintegration sets in, and must then steam hydrate in the buried condition in the hydrator. Crushing to fines will increase surface and water absorption.

Of limes being equally well burned, the lime having the greater amount of fines will absorb more water outside of lime particle pore space, i.e., by increased surface adsorption, than the coarser-graded material. This means that excess and free cooling water is better distributed in the lime mass of fine particles adhering together to hold additional water films in their inter-spaces. This advantage becomes more important as the lime is denser and less absorbent internally. Earlier and yet lower-temperature hydration is the result provided wetting is uniform and thorough.

*F. W. Adams of M.I.T., in his correlation studies between sizes of quicklime to particle size and plasticity of resulting hydrate established that minus ¼ inch yields a superior hydrate compared to that from ½ inch quicklime.



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Wetting Technique If uneven particle wetting results from spraying water on a deep bed of mixed sizes which include hydrate powder, then conversely, more even and positive wetting is obtained when water is sprayed on a thin and fully-exposed layer of uniformly-sized lime particles, which are not flooded with hydrating powder.

To wet lime uniformly, water must be: (1) Evenly distributed in a solid sheet or flat spray over the full lime stream cross-section; (2) Lime must move in a uniform and thin layer or stream bed that can be completely penetrated from top to bottom; and (3) The so-wetted quicklime mass or stream must immediately be violently agitated and moved away without allowing the resulting steam to interfere in any way with the mechanics of this wetting action. See Fig. 2.

Lime may also be wetted initially and through capillary pore absorption by pushing or dragging it at a controlled rate down into and up out of a water basin, and then discharging the so-wetted mass immediately into a high-speed agitator in which further regulating water is added. Although this method results in variable absorption due to variable particle density, it nevertheless assures full cooling water internally to every piece of lime. This technique of wetting works best when the secondary water addition is under automatic regulation.

What has been said to affect the continuous hydrating process, so far as wetting is concerned, equally applies to batch hydration. Lime should always be well contacted with water before accumulating as a large batch mass of interfering particles of quicklime and hydrate. It is even more true for batch hydrators, in which temperatures are often higher and more difficult to control. This is due to the fact that the ratio of the quantity of heat released at one time to the heat-loss capacity of the system is greater than in most continuous systems. For this reason, prehydration, pre-wetting, and premixing should be incorporated in all batch-type machines.

One of the advantages of the flat lime and water stream contacting method lies in the fact that no great pressure is necessary for atomizing sprays, an important point when dealing with milk of lime, which often has a tendency to plug valves and nozzles.

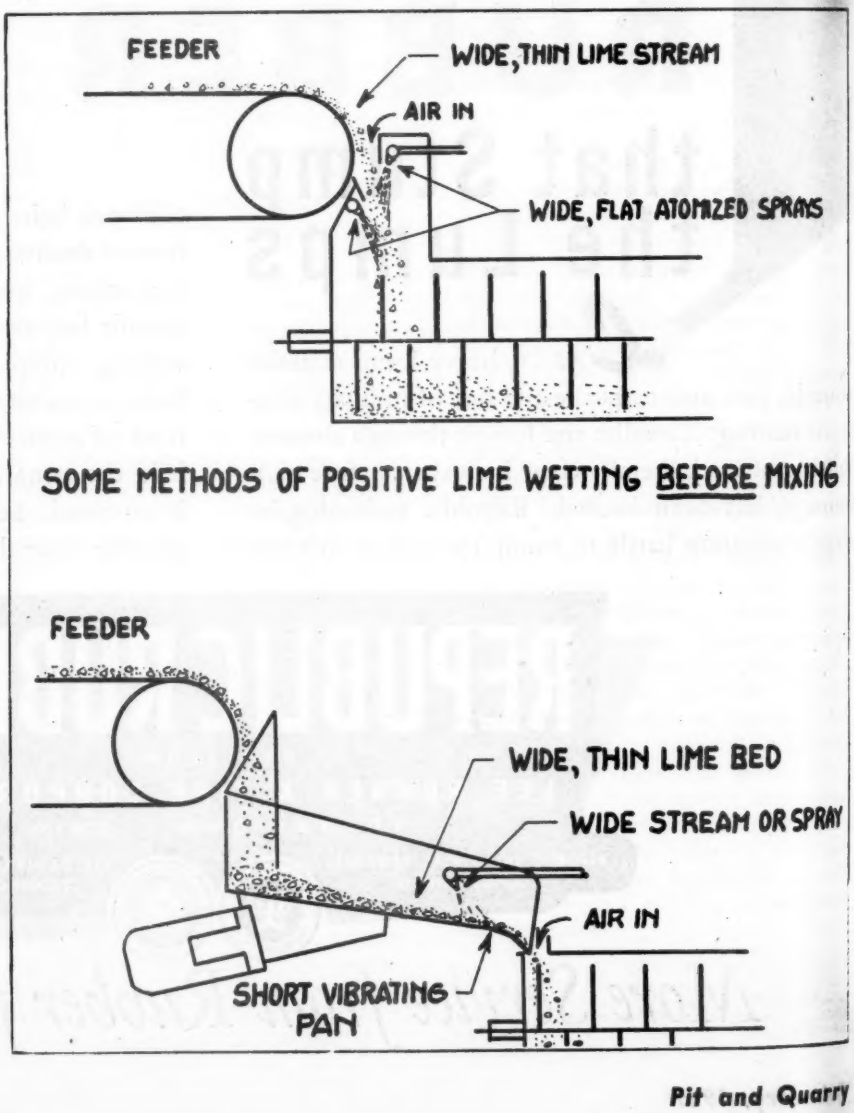
SUMMARY

1. Lime should be crushed to pass ¼-in. for best all-round results.
2. Fines should be separated from coarse if possible, and hydrated separately if not crushed previously.
3. Weight-regulating feeders have advantages over volume-regulating feeders when core content is low and particle-size gradation changes frequently.
4. Water should never be added to a deep bed of crushed lime, and certainly not in the same vessel and during hydration itself, because of the unequal water absorption of fines and coarse, the flooding and screening action of the resulting initial hydrate powder which takes up water it does not need, and the low rate of heat loss which fosters excessive initial temperatures.
5. Uniform wetting is improved by contacting thin streams of lime with corresponding streams of water which may or may not be under pressure and which is applied before actual mechanical mixing or initial hydration commences.

Next month's discussion will center on some of the other functions of the hydrator as a processing machine, particularly prehydration and its control.

(To be continued)

Figure 2



Four States Report Progress In Highway Improvement Plans

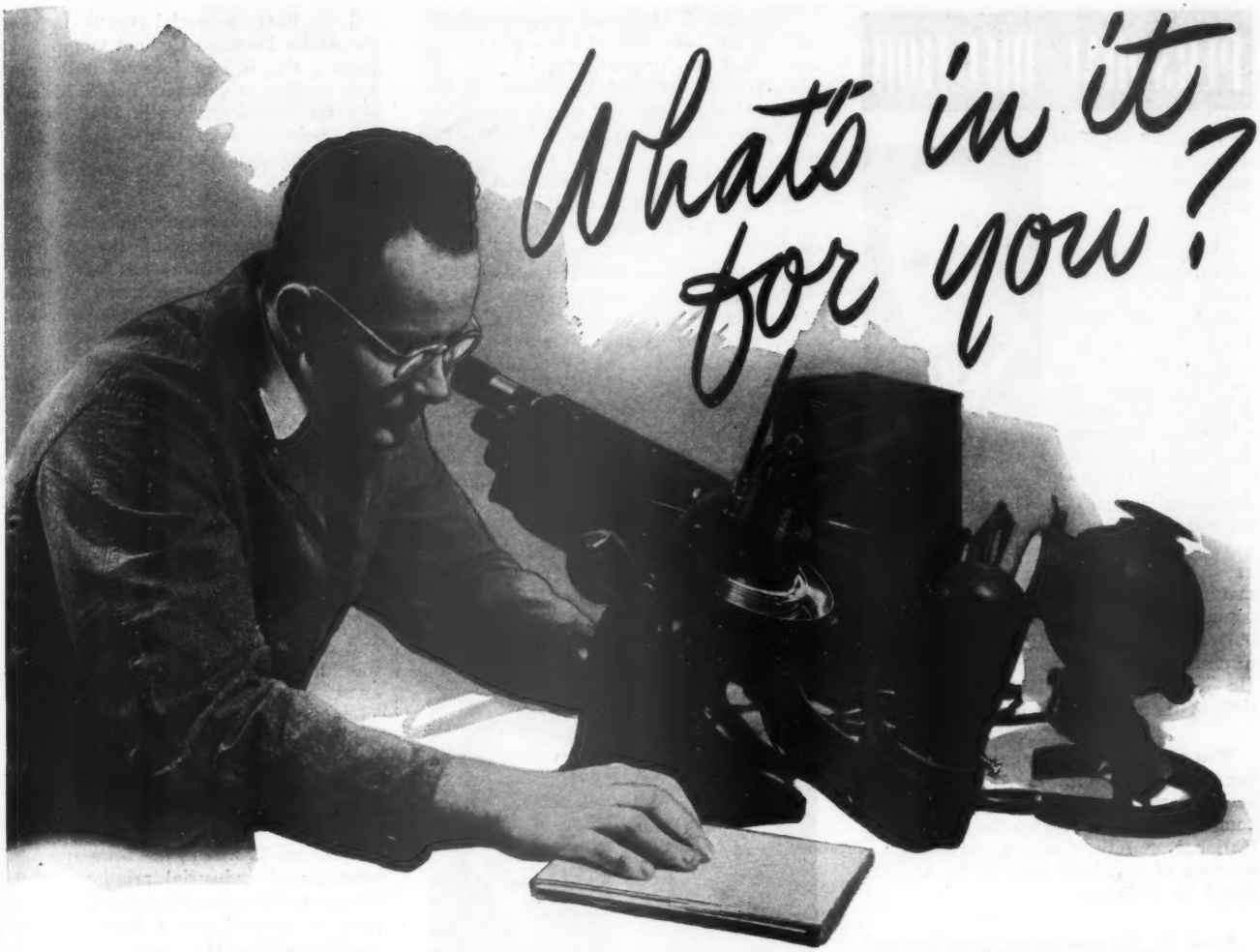
Among recent developments in state projects for improving highways are the following:

A constitutional amendment authorizing a $25,000,000 state road bond issue was approved by *Louisiana* voters at a recent election. To improve the arterial highway system of New Orleans, New York engineers estimated that $71,099,000 should be allocated—$51,375,000 to be spent on immediate problems.

Mississippi's highway department disclosed that contracts totaling $10,398,043 had been awarded on projects in 37 counties.

Plans have been mapped by the *Connecticut* highway department for a $2,000,000 highway connecting East Hartford and Glastonbury, to relieve traffic congestion on Route 15.

Montana now has $10,000,000 worth of highway construction under contract and $6,300,000 worth under construction.



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PERSONAL MENTION

W. H. Klein

WILLIAM H. KLEIN, who was formerly vice-president in charge of research and development with the Pennsylvania-Dixie Cement Corporation of New York, was recently appointed assistant to the president, James H. Ackerman, of the Lawrence Portland Cement Company, Mr. Klein assumed his new duties on January 1. He will continue his independent consulting practices.

Well known in the cement industry as an authority on the technology and manufacture of cement, Mr. Klein became a vice-president and board member of Penn-Dixie in 1936. He served as general operating manager for 12 years. He joined the Penn-Dixie staff at the time of its organization in 1926.

WALTER E. MONTGOMERY of the Quebec Asbestos Producers Association, recently named a member of the executive committee of the Mining Section of the National Safety Council, attended a meeting of that body held at the Stevens Hotel in Chicago.

ERLE P. HALLIBURTON, president of Tex-Mex Cement Company and also of the Halliburton Oil Well Cementing Company, recently delivered an address at the seventh annual Oklahoma Mineral Industries Conference, which was held at Ada, Okla. Mr. Halliburton spoke on the subject, "Minerals in Oklahoma's Industrial Future."

DR. H. RIES of Ithaca, N. Y., is chairman and PETER E. KYLE, professor of applied metallurgy, Cornell University, Ithaca, is vice-chairman of the new sand division executive committee of American Foundrymen's Association.

W. S. STONE was recently named president of the Kentucky Crushed Stone Association, succeeding Verne C. Morgan.

Others elected at the meeting, which was held at Lexington, included the following: BRUCE ISAACS, vice-president; J. R. THOMPSON, treasurer; Mrs. S. D. PACE, secretary.

OLIVER C. RALSTON, who was formerly chief of the U. S. Bureau of Mines nonmetallic minerals division, has been appointed chief of the metallurgical branch of the bureau in Washington, D. C. He was made assistant chief in February, 1945, when nine regional divisions were established in the metallurgical branch under the direction of the bureau's assistant director. More recently Mr. Ralston has been serving as acting chief of the branch.

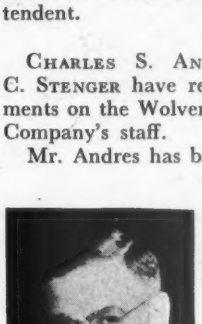
WILLIAM T. MCCORMICK, safety director for the Inland Steel Company (limestone and iron ore operations), for the last 11 years, has been transferred to Indiana Harbor, Ind., to be supervisor of occupational hygiene for the company.

W. W. MEIN JR., vice-president of the Calaveras Cement Company of San Francisco, Calif., accompanied by Mrs. Mein, recently sailed from New York on the *Queen Elizabeth* for London. Mr. Mein plans to fly from London to Northern Rhodesia and South Africa on business, returning to the United States in March.

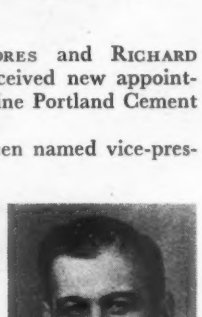
GEORGE H. ADAMS, former assistant mine engineer at the Riverside Cement Company's plant at Crestmore, Calif., has been made assistant mine superintendent.

CHARLES S. ANDRES and RICHARD C. STENGER have received new appointments on the Wolverine Portland Cement Company's staff.

Mr. Andres has been named vice-president in charge of production, and Mr. Stenger is vice-president in charge of sales. The appointments, announced by the Wolverine board of directors, became effective on January 1, 1947.



C. S. Andres



R. C. Stenger

R. S. WEAVER, who was formerly chief engineer of the United Clay Mines Corporation of Trenton, N. J., has become affiliated with the Mathieson Alkali Works, Inc., of New York City. He is now assistant superintendent of that firm's limestone department at Saltville, Va.

HUBERT K. BISHOP, who was formerly deputy commissioner of the Public Roads Administration, has become affiliated with the American Road Builders' Association as manager of the County & Highway Officials Division and the Municipal Division. Mr. Bishop succeeds Major J. A. Long, who resigned.

EUGENE SOMOFF, an electrical engineer who served in Russia, Belgium, Great Britain and the United States, has been named to a newly-created post in the American Standards Association, that of technical service engineer. His duties will include the collecting of technical information on American and foreign standards for the use of the association's staff and members.

J. D. BELL, a special representative of the Alpha Portland Cement Company of Easton, Pa., is now located at the company's office in Chicago. Before his entry into the armed services in 1942 Mr. Bell was assistant sales manager for Alpha at Birmingham, Ala.

HOWARD COONLEY, chairman of the executive committee of the American Standards Association, has been named president of the International Organization for Standardization established recently in London. Twenty-five nations are represented in the organization.

EZRA C. KNOWLTON, executive vice-president of the Utah Sand and Gravel Products Corporation, Salt Lake City, has been named a director of the Industrial Relations Council of Utah.

MURRAY D. SHAFFER of Mansfield, O. former chief engineer of the Ohio state highway department's bureau of location and design, has been named Ohio's new state highway director. The announcement was made by Governor-elect Thomas J. Herbert.

Since 1945 he has been engineer-director of Macadem Pavements, Inc., a technical and research organization.

WILLIAM E. ERWIN has been appointed manager of industrial relations by the Marquette Cement Manufacturing Company, to succeed John J. Kelly, who died unexpectedly on December 7, 1946, while on a business trip to La Salle, Ill. Mr. Erwin, who receives his promotion from assistant manager of industrial relations, will continue to make his headquarters in the Marquette general offices in Chicago. Prior to joining the Marquette organization on August 1, 1946, Mr. Erwin had for several years been director of labor relations for North American Aviation, Inc., at Kansas City, Kan.

DR. CHARLES A. THOMAS, vice-president and technical director of the Monsanto Chemical Company of St. Louis, Mo., has been elected president of the American Chemical Society for 1948. He takes office as president-elect on January 1.

FREDERICK W. BLOECHER JR., who has been employed as a mining engineer since his graduation from Lehigh University in October, 1944, has been appointed instructor in mining engineering at Lafayette College.

ROBERT B. MCELWAINE has formed the M. & M. Exploration Corp., in cooperation with E. P. MIRELLE. Mr. McElwaine is a consulting mining engineer and geologist, formerly with the U. S. Bureau of Mines. The new corporation will so contract drilling, examinations, valuations, and purchasing of non-metallic minerals.

W. G. Skinner

W. George Skinner has been made assistant superintendent and supervising chemist at the Union Bridge, Md., plant of the Lehigh Portland Cement Company.

Mr. Skinner was first employed at Union Bridge in 1913, when the plant was owned by the Tidewater Portland Cement Company. He had previously been associated with the Virginia Portland Cement Company, the American Cement Engineering Company, the Giant Portland Cement Company and the U. S. Metals Refining Company. Except for one year, spent as chemist and assistant superintendent of the Old Dominion Chemical Company, Mr. Skinner has been continuously in the service of Tidewater and Lehigh.

His interest in industrial safety efforts has done much to make possible a notable safety record at the Union Bridge plant.

Joseph J. Schedel, president and general manager of The Dolite Company, Gibsonburg, O., is widely known as one of the most progressive producers in this field. Few contemporary producers know, however, that he is also one of the leading raisers of prize-winning livestock. His 900-acre Portage Farm, near Woodville, O., has been a consistent winner at various shows, including the International Live Stock Show held each year in Chicago.

At the 1946 show, the largest in number of entries and attendance, Portage Farm won among others the following awards: Grand Champion Pen of Barrows, Overall Breeds; the Reserve Grand Champion, ditto; the Champion Heavyweight Barrow, Overall Breeds; the Champion Heavyweight Pen of Barrows; the Champion Chester White Barrow and the Pen, ditto; etc.

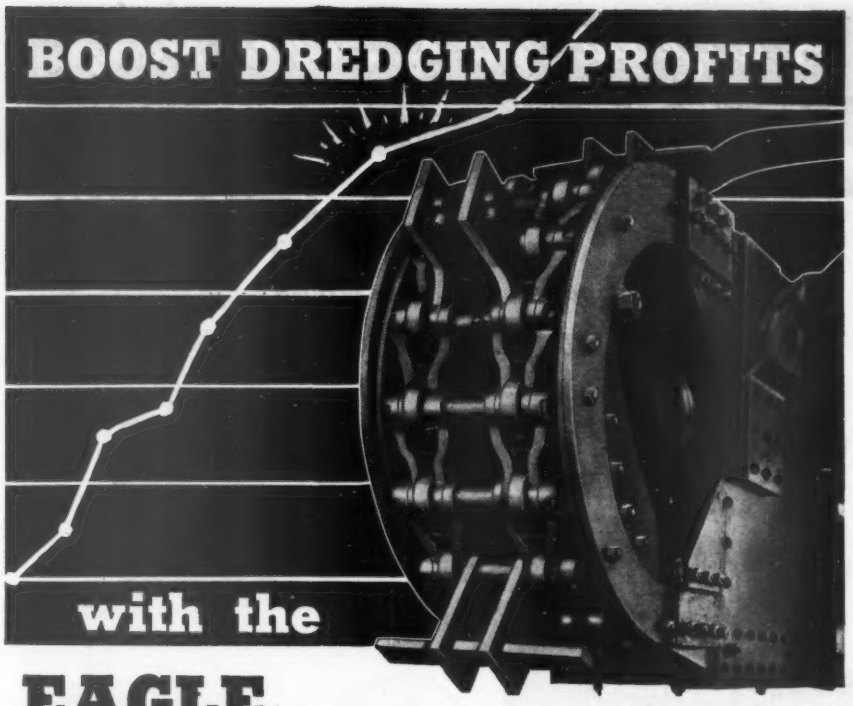
Ernest A. Melkus, National Gypsum Company quality supervisor at the Medicine Lodge, Kan., plant, was promoted to plant superintendent. He replaces R. W. Warren, who is now engaged in business in Ellingwood, Kan.

Eddie Good, formerly at Medicine Lodge, has been recalled from the Rotan, Tex., National plant to replace Mr. Melkus.

Bernard Donelan has been appointed resident engineer and superintendent at Kingsley Dam by the Central Nebraska Public Power and Irrigation District. He succeeds E. J. Macks as resident engineer.

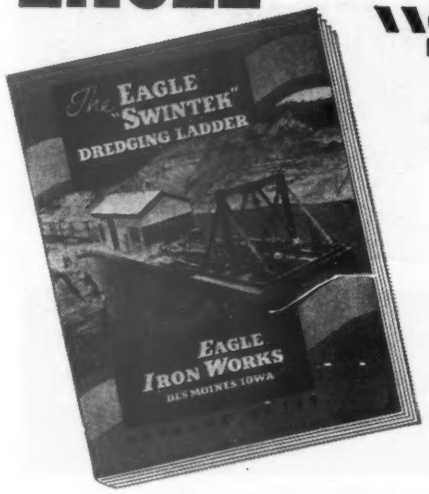
A. H. Zeilinger was recently named a member of Gov. W. L. Knous' committee on safety. Mr. Zeilinger is the Colorado Fuel & Iron Corporation's safety director at Pueblo, Colo.

BOOST DREDGING PROFITS



with the

EAGLE "SWINTEK"



- **Cutters Assure Uniform Feeding . . . loosen and agitate deposit**
- **Chain Prevents Clogging . . . keeps oversize material out of nozzle; carries large chunks clear of suction area**

Dredge deeper . . . dredge more —the Eagle "Swintek" Dredging Ladder assures regular flow of solids for the maximum number of working hours. Digging chain loosens, agitates compacted solids; screens out oversize pieces—no more "slug" pumping; no more shutdowns to clean out obstructions in nozzle opening or pipeline. Get at those usually coarser, deeper deposits—"Swintek" permits dredging below clay strata or boulder nests impeding plain suction pumping. Rugged, properly engineered design assures long service life, minimum maintenance. Digging chain of AMSCO austenitic manganese steel, "the toughest steel known," for maximum impact and abrasion resistance. Send for Bulletin 745 above.

EAGLE IRON WORKS
133 Holcomb Ave., Des Moines, Ia.

EAGLE *Specialized Sand and Gravel Equipment*
"SWINTEK" DREDGE LADDERS — SCREW WASHERS
LOG WASHERS — DEHYDRATORS — SAND TANKS
CLASSIFIERS — REVOLVING SCREENS
EAGLE IRON WORKS
DES MOINES, IOWA
"SERVING INDUSTRY FOR OVER SEVENTY YEARS"

A different type of Slurry Pump of new advanced design!

The New Morris Type "R"

★ *will give you Longer Wear*

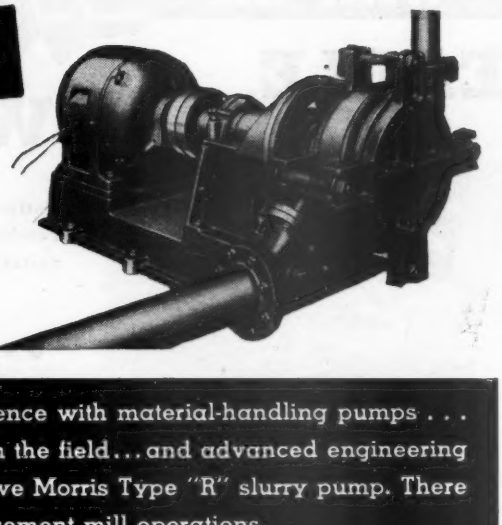
★ *Less Trouble, Lower Operating Costs!*

Gland Under Suction Pressure Only

To Dismantle Remove 4 Bolts

Impeller Removable Without Disturbing Piping

Removing Impeller



Exceptional number of nozzle positions

It took 80 years' experience with material-handling pumps . . . constant practical testing in the field . . . and advanced engineering skill to develop the exclusive Morris Type "R" slurry pump. There is no other like it for your cement mill operations.

Specify the New Morris Type "R" Slurry Pump— Here Are 12 Reasons Why!

1- Heavy, wear-resistant parts.

2- No internal studs or bolts.

3- No troublesome internal joints and fits.

4- Overcomes uncertainty of proper hub-sealing water pressures.

5- Ability to handle maximum suction lifts and almost unlimited positive suction heads.

6- Freedom from packing troubles.

7- With clamping effect of bolts on discs, shell is not subject to high stress. Consequently shell can be made from variety of materials with high abrasive resistance though not necessarily of high strength.

8- Shell interchangeable for right or left hand rotation. Suction and discharge nozzles can be rotated around axis of pump to positions in any of four quadrants, a total of 72 possible combinations.

9- Low velocity in suction chamber reduces scouring action, increasing life of chamber which is a replaceable casting not integral with bearing frame.

10- Worn clearances on suction side of impeller easily closed by four adjusting screws.

11- Excellent hydraulic efficiency.

12- Power requirements surprisingly low.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Sales Offices in Principal Cities

MORRIS **CENTRIFUGAL PUMPS**

OBITUARIES

Eugene A. Hults, 59, who was once vice-president of the Mathieson Alkali Works, Inc., and general manager of the Saltville, Va., plant, died at his home in Bristol, Va., on November 20, 1946.

Mr. Hults went to Saltville in 1920 as assistant to the president of Mathieson Alkali and later became vice-president and general manager. He resigned from his duties in 1932 and joined the staff of the American Viscose Company. In 1940 he became president of the Universal Motor Products Corporation in Bristol. Two years later he resigned from this position and opened offices as a private consulting engineer.

In his earlier life he had been associated with the Universal Portland Cement Company at Bussington, Ind., as assistant electrical engineer in direct charge of a new plant. Later he became affiliated with the General Electric Company at Chicago, where he supervised engineering sales of all electrical equipment in cement plants and chemical industries. He was also in charge of the North Iowa Brick and Tile Company of Mason City, Ia. In 1917 he enlisted in the U. S. Army and served with the rank of captain in the air service division during World War I.

Douglas C. Jeffery, superintendent of the National Gypsum Company's plant in Clarence Center, N. Y., died of a heart attack recently. Mr. Jeffrey began his career with the old Noble Gypsum Company in 1916 in Akron, N. Y., where he helped to build a plant. (Later the property was acquired by the Universal Gypsum & Lime Company, which sold out to National Gypsum in 1936.)

Mr. Jeffrey had been Akron superintendent for Universal and continued in that capacity for National. In 1938 he took over the Clarence Center plant.

Francis Chucra, 63, an employee of the Bolger-Heller Slate Company of Wind Gap, Pa., was killed on December 16 when he was caught by a huge rock slide in the quarry. Tons of debris and stone, apparently loosened by heavy frosts, cascaded down the 350-foot quarry face. Critically injured by the slide was Harry Sargent, another quarry employee.

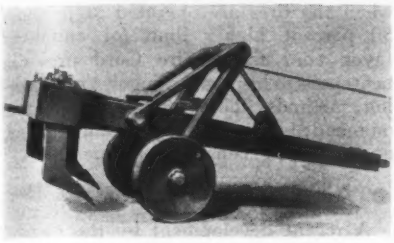
William L. Baldrige, 77 who was for more than 40 years president of the E. R. Baldrige Company of Holidaysburg, Pa., died on January 3 after an extended illness. Mr. Baldrige's father, E. R. Baldrige, opened the first quarry in the district in 1903 for the mining of ganister rock.

Victor Williams, 33, an employee at the Material Service Corporation's quarry at Fairmount, Ill., was killed on January 7 in an accident. He was attempting to repair a valve on a hoist while a truck was being dumped. The truck bed fell on him, crushing him and causing fatal injuries.

NEW MACHINERY and SUPPLIES

● Ripper for Crawler Tractor

Rippers are rugged machines, designed to do their tough job in a way that will substantially speed up scraper loading time and reduce wear and tear on scraper cutting edges and bowls. Two sizes of



Designed for rough work.

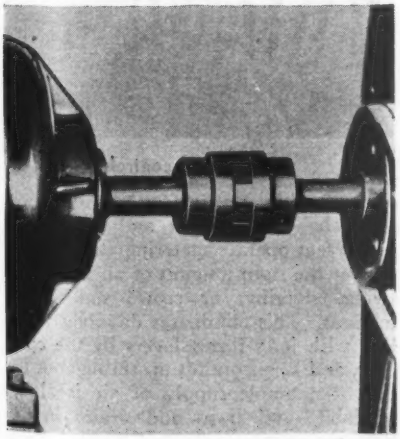
cable-operated rippers are now being made by the Caterpillar Tractor Co., Peoria, Ill.

These two sizes, the No. 28 and No. 18, are machines designed for use with Caterpillar crawler tractors. The No. 28 is built for use with one or two D8 tractors, while the No. 18 is for use with a single D7 or D8 tractor.

Both models are equipped with three teeth, which are detachable in the event that less than three are required on the job. The replaceable tips of these teeth are made of heat-treated alloy. The ripper may be set to penetrate to any desired depth up to the maximum, which is 30 inches for the No. 28 and 28 inches for the No. 18.

● Flexible Coupling

The Lovejoy L-R "Type A" flexible coupling, made for duties in the 1/6- to 40-hp. range, reportedly corrects for misalignment, backlash, whip and shock in power transmission shafts to pumps and



Versatile coupling device.

other small machines. It is manufactured by the Lovejoy Flexible Coupling Co., 5022 W. Lake St., Chicago 44, Ill. The unit consists of three parts, a resilient spider and two metal flanges. The spiders are made of materials suited to load conditions, and are always in sight for inspection. Rubber, leather, molded neoprene, felt, rubber duck, or brake lining material are available as cushioning material.

● Fork Lift Attachment

The Clark Tructractor Co., Division of the Clark Equipment Co., of Battle Creek, Mich., has announced a new method of simplified materials handling in connection with the introduction of the newly developed Clark "Pul-Pac."

The Pul-Pac is a combination push-pull attachment for Clark fork-lift trucks, with a flat steel plate serving in place of the conventional forks, and an inexpensive load-base of paper or other ma-

Aid to accurate depositing.

terial serving to receive, lift, and carry loads in place of a conventional wood or metal pallet

A hydraulically-actuated gripper device clamps onto the extended edge of the paper load-base (see illustration), and pulls the sheet and the load onto the plate At the destination the load is lifted and registered directly over the area on which it is to be deposited, and the pusher device, working against the load, deposits the carrier sheet and its cargo in the desired position as the truck backs up and withdraws the carrier plate

This prime mover has an 85-hp. engine.

It's A Profitable Investment

Almost as regular as clock work, letters come in from readers telling about the wide variety of highly profitable ideas they get by regularly reading the advertisements in PIT and QUARRY.

Of course, the editorial material in each issue of PIT and QUARRY always contains a wealth of practical, "know how" facts, figures, data, information, ideas, and suggestions—and the same is true of the advertisements.

So, don't miss a sure thing. Make it a practice of reading the advertisements in each issue of PIT and QUARRY. The little extra time it takes may turn out to be a highly profitable investment.

● New Scraper Unit

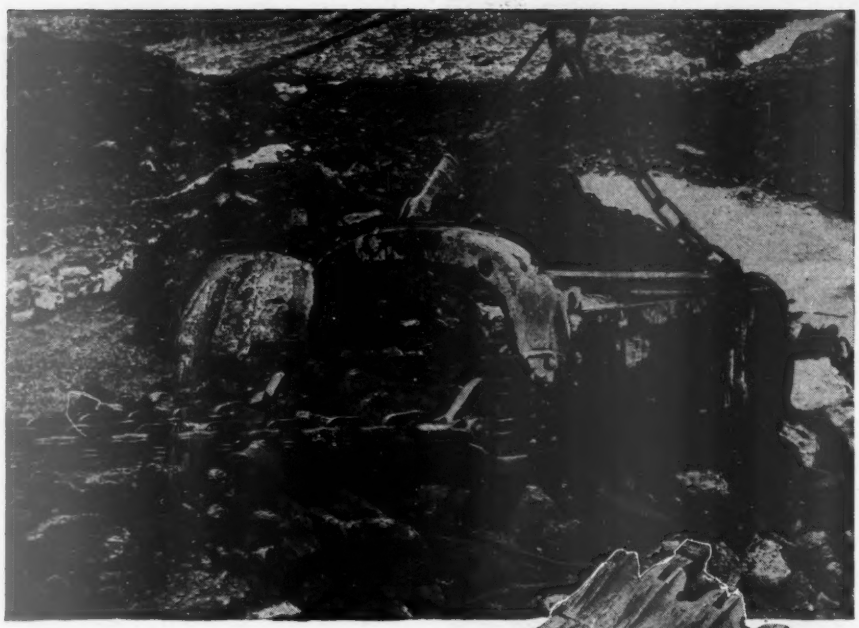
A new small Tournapull for high-speed dirt moving, the Model D, has been developed by R. G. LeTourneau, Inc., Peoria, Ill., to add to its line of rubber-tired construction equipment. Built to answer the need for a small, high-speed scraper unit especially suited to the pit and quarry field, the D Tournapull features many new developments in design.

Powered by an 85 hp. gasoline engine, this prime mover is equipped with the new E-4 Carryall Scraper, having a load limit of 4 tons and a struck capacity of 3.3 cu. yards. The unit is self-loading, has four speeds forward, four reverse, and travels up to 23 miles per hour.

One of the outstanding features of this Tournapull is the new electric control by individual electric motors. The operator steers, shifts and handles all scraper controls by buttons on the electric control panel.

The D Tournapull has a new type differential which keeps both wheels pulling at all times. The design of this differential is such that on slippery going the most power is supplied to the wheel on firmest footing. Neither wheel will spin independently of the other. This factor, along with positive steering, another development, contributes greatly to mobility and ease of operation. Positive steering enables the operator to lock the Tournapull and Carryall into a single unit.

A new type and size of pneumatic rubber tire is used on the two-wheel D Tournapull prime mover. This is a 14.00 x 32 tire with tapered beads which seats itself firmly against the wheel rim at low air pressures.



Above: ESCO 1½-yard heavy duty bucket operated on Bucyrus 37, digging steel slag in Republic Steel plant.

Right: bottom view of same bucket after six months on this job.

DIGGING STEEL SLAG WITH *ESCO* DRAGLINE BUCKETS

Digging up acres of compacted steel slag is as hard on dragline buckets as any job possibly can be. Yet it was done successfully by the Heckett Engineering Corporation of Butler, Pa., using *ESCO* dragline buckets.

Pieces of slag averaged over three feet in diameter. Some of the work was under water. After buckets of three other makes had broken down on this job, an *ESCO* heavy duty bucket was put into service. After working six months it is still going strong and ready for more.

Service like this is typical of *ESCO* dragline and dipper buckets. It results from sound design by practical, experienced engineers who put strength where it is needed, engineer out excessive weight.

Manganese steel castings are used for all parts subject to shock and wear, grow harder and tougher the more they work.

An *ESCO* dragline or dipper bucket will make that tough job of yours more profitable. Get full information from your nearest *ESCO* representative, or write us.

ELECTRIC STEEL FOUNDRY

2141 N. W. 25th Avenue · Portland 10, Oregon

SPECIALISTS IN APPLIED METALLURGY

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LOS ANGELES, 11 — 4600 Pacific Blvd. — Lucas 7251

CHICAGO, 1 — 221 N. LaSalle St. — Dearborn 2284

EUGENE, ORE. — 1991 Sixth Ave., W. — Phone 5012

IN CANADA—*ESCO* LIMITED, 1084 Homer St., Vancouver, B. C. Telephone Marine 2343

● Wire-Reinforced Tire

Firestone's long-awaited Wire Cord tire is now in production—a rugged pneumatic tire employing high-tensile steel wire for cotton and rayon cord. The present Wire Cord is built up of plies of rubberized wire cord in the same manner as the cotton or rayon cord, but fewer plies are required.

The cord, composed of several strands of wire, is but .036 of an inch in diameter. Each 9.00 x 20 four-ply Wire Cord tire contains more than 55 miles of hair-like strands. Best performance is obtained when the tires are operated at pressures 30 percent higher than for cotton or rayon cord tires. Wire Cord tires can be repaired by conventional tire repairing methods. They are especially recommended for use in logging, mining, quarrying or construction operations.

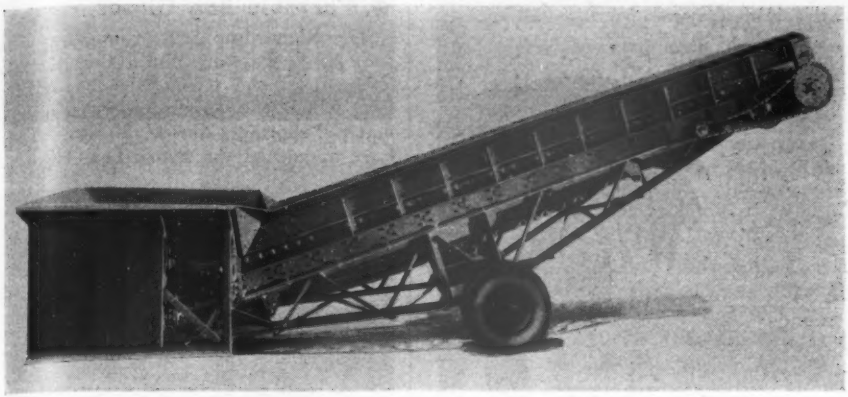
● Air Control System

A recent development by the Osgood Co., Marion, O., is the Osgood "Smooth as Steam" air control. This system allows the operator to sit in his cab and control all the main operating functions

Air-powered controls.

of the machine by air power. Short throw levers banked in front and to the side of his seat operate metering valves which deliver the right amount of air for travel, swing, steering, or crowd and retract motions. This eliminates day-long wrestling with long throw levers by the operator, and keeps output up throughout the day. An ample supply of air is always available, and traps and drains in the lines remove moisture and prevent freezing.

Complete but condensed information on nonmetallic minerals production is contained in the statistics chapter of the Pit and Quarry Handbook.



30-foot feeder

● Portable Apron Feeder

A development of interest to users of portable crushing and screening equipment is a portable apron feeder announced by Pioneer Engineering Works, Inc., of Minneapolis.

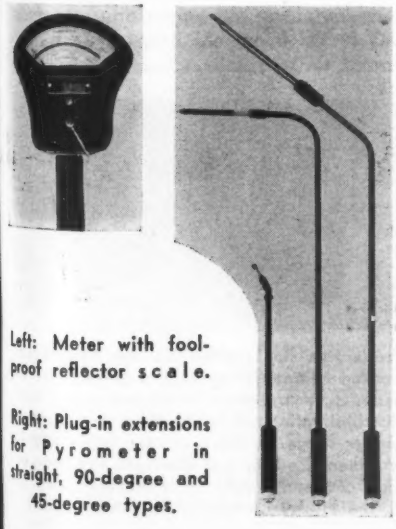
The Pioneer portable apron feeder is suitable for heavy, sharp, abrasive rock and similar materials for which a belt conveyor is impractical. This long feeder, mounted on its own chassis and wheels, with hopper attached, can be swung into place quickly for short-time set-ups. The feeder, made in a 36-inch width and measuring 30 feet from center to center of head and tail shafts, is supported on a single axle equipped with dual pneumatic tires. Steel wheels are optional.

● Extension Type Pyrometer

An extension-type portable pyrometer has been designed to permit a choice of plug-in extensions where a number of applications necessitates a universal instrument for measuring and checking temperatures requiring the use of different kinds of thermocouples. The new instrument is made by the Wheelco Instruments Company, 847 W. Harrison Street, Chicago.

Plug-in extensions are available in either straight, 45- or 90-degree-angle types. Adapters permit the choice of material and calibration of thermocouples. The pyrometer is contained in a sealed, dustproof aluminum case, which has a pistol grip handle that may be locked in a horizontal or vertical position. A 3 9/16-inch reflector scale prevents parallax errors in reading. To protect the meter when the instrument is not in use, a shunt lever is provided which can be snapped into position with a simple thumb movement.

Dual Iron Constantan scales are calibrated from 0 to 600 degrees Fahrenheit, or 0 to 1,000 degrees F. (with Centrigrade equivalents); and dual Chromel-Alumel scales are calibrated from 0 to 1,600 degrees F., or to 2,500 degrees F. (with Centrigrade equivalents). Bare Marshall, or surface thermocouple tips may be selected.



Left: Meter with foolproof reflector scale.

Right: Plug-in extensions for Pyrometer in straight, 90-degree and 45-degree types.

● Weather-Proof Motor

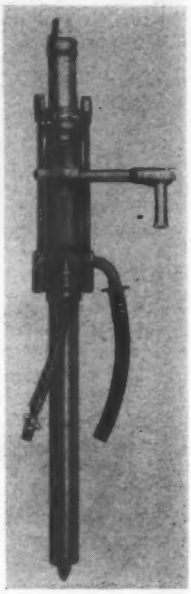
The Allis-Chalmers Manufacturing Co., Milwaukee, Wis., has announced that it is now producing a complete line of outdoor weather-proof, totally-enclosed motors in the 2000 horsepower size range.

Totally-enclosed motor.

Principal change in the new line of motors in the larger ratings is a complete redesign of the ventilation heat-transfer system. All air passages are practically self-cleaning, and pockets in which water or liquid might be trapped have been eliminated. Air passage tubes can be cleaned with a brush or an air or water hose. Because of its water-proof joints and new cooling system, the new totally-enclosed all-fabricated steel motor promises to be as effective as cast-iron motors.

● Self-Rotating Stoper

The Worthington Pump and Machinery Corporation has announced a new "Blue Brute Self-Rotating Stoper, Model WR-31," for use in mining operations. Four-pawl rifle bar rotation is used with air-thrown pawls set in a pawl housing in the cylinder. The rifle bar has a rachet at the lower end which engages the pawls on the back stroke of the piston. A shield-type threaded chuck is furnished for all sizes and sections of shankless drill steel, and a constant stream of air through the air tube keeps water and sludge out of the front end. The integral cylinder, with replaceable bronze liner, was designed to insure alignment of the piston; and the long cylinder guide gives added rigidity to the front head.



Stoper with integral cylinder.

The shielded exhaust is directed downward away from the operator. On the feed piston, tapered washers bare the cup leathers out to prevent leakage between feed piston and cylinder. The tapered feed leg bushing is replaceable; and the feed piston is stellited for long life.

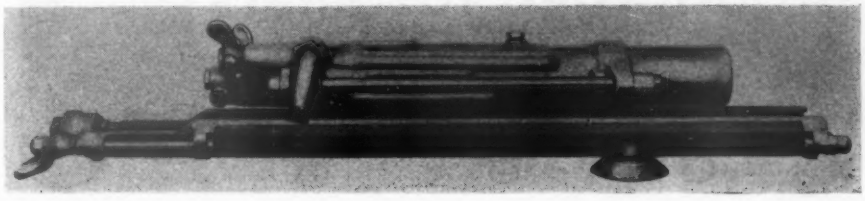
● New Line of Drifters

The Worthington Pump and Machinery Corporation announces a complete line of Blue Brute drifters for mining, quarrying and general construction work.

They are manufactured in three sizes, 3-inch, 3½-inch, and 4-inch cylinder diameters. The drifter may be mounted as a hand crank machine, Model WHC; an air-motor-driven unit with motor attached to guide the shell, Model WPMS; or with the air motor attached to the back head of the drifter, Model WPM. The width of all cylinder ways is the same on all sizes and models and each size drifter uses the same guide shell.

These drifters are equipped with standard four-pawl rifle bar rotation and the Worthington end-seating, positive-action automatic valve.

Drifter for quarry use.



So that's why we've been exporting so many Crosby Clips to Africa!

704

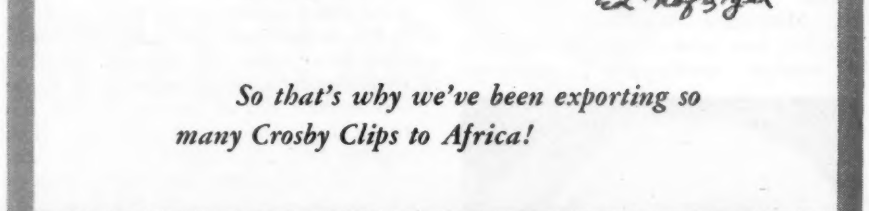
Facts are facts. CROSBY CLIPS outsell all other drop-forged wire rope fasteners combined. Why? Because the basically correct design gives the CROSBY CLIP a "vise-tight" grip on two strands of wire rope; locks the loop with positive strength and safety. Channel grooved base . . . tough drop-forged steel . . . hot dip galvanized. Sold by distributors everywhere; made only at St. Paul, Minnesota by American Hoist and Derrick Co.

Industry buys more

CROSBY CLIPS

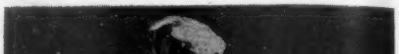
than all other

drop-forged fasteners



● Portable Bag Closer

The Richardson Scale Company, Clifton, N. J., has announced the re-establishment of the Richardson Bag Closer line, which was discontinued because of material shortages during the war. They have appointed the Bemis Bro. Bag Co., 408 Pine St., St. Louis, Mo., as exclusive distributor of this portable machine.

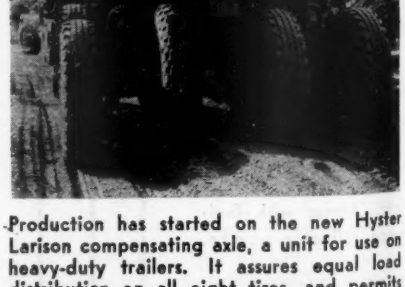


Uses friction drive.

No motor or electric power is necessary in operating the device, as it functions on a friction drive. As the Richardson Bag Closer is drawn across the bag, friction rollers rotate on double-row, felt-sealed ball bearings, and transmit power to the needle through a train of gears operating on oilless bearings.

● Announce Machinery Service

The C. I. T. Corporation, 1 Park Ave., New York 16, N. Y., offers a service to operators desiring to purchase new, used or surplus machinery. The corporation wishes to serve those persons who want to acquire certain items of new equipment without depleting their working capital. They may maintain a strong cash position by using the C. I. T. service. Several items, purchased from one or more distributors, can be financed simultaneously and combined in one obligation. C. I. T. will also make commitments to finance machinery ordered for future delivery. Loans are liquidated over any agreed term of months, giving the equipment an opportunity to help pay for itself out of earning capacity.



Production has started on the new Hyster Larison compensating axle, a unit for use on heavy-duty trailers. It assures equal load distribution on all eight tires, and permits bigger loads on steep grades. It is said to lengthen tire life, and eliminate tire drag on high crowned roads. It is manufactured by the Hyster Company, Portland 8, Ore.

TRADE NOTES

Russel Morgan

The Le Roi Company of Milwaukee, Wis., which manufactures internal combustion engines, portable compressors, engine-generator sets and specialized mowing equipment, has announced the purchase of The Cleveland Rock Drill Company of Cleveland, O. The acquisition of this firm, a division of The Cleveland Pneumatic Tool Company, substantially accelerates the rock drill manufacturing program announced earlier, coincidental with the establishment of Le Roi's Cleveland Division.

Russ Morgan, formerly secretary and sales manager of The Cleveland Rock Drill Company, who joined Le Roi in 1945 and who was instrumental in the organization of Le Roi's Cleveland Division, will head the expanded facilities as vice-president in charge of the Cleveland Division. John M. Dolan, vice-president in charge of sales, will supervise the integration of sales activities of all Le Roi products from the company's headquarters at Milwaukee.

Manufacture of Le Roi-Cleveland products is being transferred at once to Le Roi's new Cleveland Division plant at 12500 Berea Road, Cleveland 11.

Nordberg Manufacturing Company of Milwaukee and Busch-Sulzer Bros.-Diesel Engine Company of St. Louis have announced the acquisition by Nordberg of certain manufacturing assets from Busch-Sulzer. Nordberg will continue the Busch-Sulzer diesel engine business as a division of the Nordberg Mfg. Co.

Nordberg is a manufacturer of heavy machinery, including diesel engines, and Busch-Sulzer, founded in 1901 by Adolphus Busch, is engaged in the production of diesel engines.

Nordberg Manufacturing Company of Milwaukee, Wis., has appointed D. M. Booth as regional manager of its Export Division. A graduate of the University of Alabama and Cornell College, he has been chief engineer and superintendent of power in both diesel and steam plants in United States and Mexico. During World War II he was engaged as mechanical engineer in connection with the work of the United States Railway Mission in Mexico.

Mr. Booth was formerly in charge of Mexican operations for the Worthington Pump and Machinery Corporation in Mexico, where he has lived for 15 years. He will cover Mexico and Central America for Nordberg, with headquarters in Mexico City.

On December 6, 1946, 95 employees of the General Electric Company who had performed work of outstanding merit during the war years of 1942 through 1945 were presented with the Charles A. Coffin award, the highest honor offered by the company.

Because of the highly secret nature of the work they had done, the presentation was the first since 1941. The awards were distributed to persons in 14 cities throughout the country—Schenectady and Fort Edward, N. Y.; Lynn and Pittsfield, Mass.; Philadelphia and Erie, Pa.; Bridgeport, Conn.; Bloomfield, N. J.; Fort Wayne, Ind.; Chicago; Washington, D. C.; Los Angeles; San Francisco, and Dallas.

The Nicholson Company, Inc., of New York, N. Y., engineers and constructors of bulk storage structures, has announced the opening of an office in Chicago, located at 38 S. Dearborn Street. Arthur J. Lindquist is district manager of Chicago.

The recent election of new officers announced by the Easton Car & Construction Company of Easton, Pa., resulted in the naming of J. C. Farrell as president. Mr. Farrell succeeds his father, W. E. Farrell, president of the firm since 1914, who now becomes chairman of the board of directors.

The elder Farrell is the founder of the Easton Car & Construction Company. As head of the firm, Mr. Farrell gained recognition in the development of modern industrial transportation equipment. He was influential in standardizing industrial car design and in promoting the use of giant pneumatic-tired trailers in mines and quarries.

J. C. Farrell became affiliated with the firm in 1924, and ten years later was named vice-president.

R. C. Haggerty, secretary-treasurer since 1924, was elected vice-president.

The appointment of Charles S. Hegel as manager of the Stainless Steel Division, and John W. Queen as manager of the Alloy Steel Division of Joseph T. Ryerson & Son, Inc., steel distributors, has been announced by Everett D. Graff, president. They are located at the Chicago plant of the company where executive headquarters are maintained. G. Van Dyke, former head of the Ryerson Special Steels Division, retired on December 31, 1946, after 30 years of service with the organization.

J. W. Queen

C. S. Hegel

Mr. Hegel joined the company in 1928. Since 1945 he has been manager of the Special Steels Department at the Chicago plant.

Mr. Queen became a member of the Ryerson sales staff in 1933 at the New York plant of the company. He was appointed manager of the Alloy Steel Department at New York the following year. Mr. Van Dyke joined Ryerson in 1917 to head the Tool Steel Division, which was later expanded to include alloys and stainless steel. During his long period of service with the company he was particularly active in promoting a broader understanding of the characteristics and properties of special analysis steels.

Dr. Willard H. Dow, president of the Dow Chemical Company of Midland, Mich., has been awarded the Chemical Industry Medal by the Society of Chemical Industry for outstanding service to applied chemistry.

J. C. Farrell

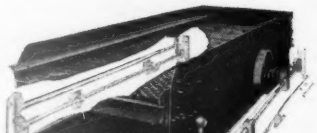
W. E. Farrell

Here's Why Profit-Minded Operators Everywhere Choose SECO Vibrating Screens

There's a right SECO for your needs

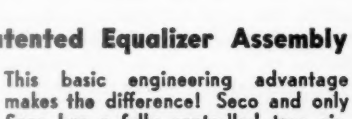
More Tons Per Hour

1. Results count! Yes, day after day performance records piled up by Seco screens over the last eight years on all types of installations prove conclusively their ability to screen more tons per hour. Here's How



Patented Equalizer Assembly

2. This basic engineering advantage makes the difference! Seco and only Seco has a fully controlled true circular action—that never varies—with less maintenance, keeps every inch of screen surface working at all times.



No Bobbing • Galloping or Weaving

3. There's no lost motion—no slowing up of the load—blinding is kept to a minimum—and just think how much longer a Seco screen will hold up on the job with less maintenance—because there's no excess strain on any one part. Get more production per hour—per month—per year. Get a SECO! Write Dept. A.

SINGLE DECK

DOUBLE DECK

TRIPLE DECK

THREE AND ONE HALF DECK

To scalp a small amount of oversize and make 3 finished sizes as well as fines.

SECO

Screen Equipment Company, Inc.

9 Lafayette Avenue, Buffalo 13, New York

Paul Fulford

In accordance with the plans of R. G. LeTourneau, Inc., Peoria, Ill., to create an international distribution organization, the firm's Export Division will soon be transferred to New York City from Peoria.

In charge of the newly-created division (formerly the export department) is Paul E. Fulford, who will be responsible for all export functions, including sales, service, credit, collections, merchandising, parts, installations, market research, field engineering, forwarding and so on. Under the former setup, the export department was responsible only for foreign sales.

A long-range program for continued and improved customer service was the central theme at a recent Allis-Chalmers Manufacturing Company general machinery division conference of district office managers and company executives in Milwaukee, Wis.

W. C. Johnson, vice-president in charge of the general machinery division, announced an important change in the division's field organization, a change aimed at furthering customer service.

Mr. Johnson revealed that the district offices would be grouped, according to location and similar interests, under the direction of regional managers. The regional managers each will have a staff of specialists, and the regions will operate as self-contained field units. Mr. Johnson announced the appointment of the first regional managers, who will act as a nucleus for building the first four regional organizations. The appointments announced were W. F. Taylor, D. S. Kerr, and J. L. Pratt, as well as A. J. Schmitz, who will continue in that capacity.

Mr. Taylor, who will supervise the New England area, formerly was manager of the Allis-Chalmers district office in Boston, Mass. Mr. Kerr, who will handle the Southeast, was manager of the Atlanta, Ga., district office. The Southwest will be supervised by Mr. Pratt, who has been manager of the Dallas, Tex., office. Mr. Schmitz will continue to direct operations in the Pacific coast area. Before assuming the regional post, Mr. Schmitz was in charge of the company's operations in Havana, Cuba.

The appointment of Arthur F. Peterson as general manager of raw materials properties for the Bethlehem Steel Company has been announced by M. L. Jacobs, vice-president. Mr. Peterson will make his headquarters at the company's general offices in Bethlehem.

Mr. Peterson has been employed by Bethlehem Steel since 1924, when he came to Cornwall as superintendent of the Cornwall mines. He had previously been employed by Pickands Mather & Company of Cleveland, O., and was stationed in the Michigan ore fields.

The appointment of John C. Campbell as manager of industrial engine sales and of James W. Brown as advertising manager was announced recently by V. C.

J. W. Brown

J. C. Campbell

Genn, general sales manager for the Detroit Diesel Engine Division of General Motors.

Mr. Campbell, who will now direct industrial sales of the GM Series 71 diesel engine through Detroit Diesel's distributors and dealers, spent several years with the Wright Austin Company and with the Frigidaire Division of General Motors. He joined Detroit Diesel in 1942 as a member of the sales department. Since 1945, Mr. Campbell has been in charge of advertising and sales promotion activities for the company.

Mr. Brown, who now takes over as advertising manager, spent several years on the advertising staffs of leading publications in Cleveland, Memphis, and Dallas, and for the past year has held the position of product news manager for Detroit Diesel.

Acquisition by the M-R-S Manufacturing Company of a new and larger site for the manufacture of Mississippi Wagons was announced December 18, when title to a part of the Mississippi Ordnance Plant at Flora, Miss., was formally transferred to the company by the Reconstruction Finance Corporation.

The deeded property consists of 406.13 acres of land and eight buildings with a total of 79,000 square feet of floor space, including a modern plant structure of 52,400 square feet and an office building of 12,500 square feet. It is situated 23 miles north of Jackson, Miss., the former location of M-R-S facilities.

The establishment of a joint cooperative committee between the Associated General Contractors of America and the Associated Equipment Distributors has been announced by H. E. Foreman, managing director of the A. G. C., and C. F. Winchester, executive secretary of the A. E. D.

Members of the committee for A. G. C. are D. W. Winkelman, D. W. Winkelman Co., Syracuse, N. Y.; R. E. O'Connor, J. C. O'Connor & Sons, Inc., Fort Wayne, Ind.; J. D. Bonness, Joseph D. Bonness, Inc., Milwaukee, Wis.; E. G. Hoeppner, Hoeppner-Bartlett Co., Eau Claire, Wis.; John MacLeod, Macco Construction Co., Clearwater, Calif.; F. B. Winston, Winston Bros. Co., Minneapolis, Minn.; for A. E. D., A. F. Garlinghouse, Garlinghouse Bros., Los Angeles, Calif.; G. W. Swart, Contractors Machinery Co., Grand Rapids, Mich.; P. A. Dufford, Intermountain Equipment Co., Boise, Ida.; J. N. Harvey, Louisiana Tractor & Machinery Co., Baton Rouge, La.; E. J. Crosby, Hedge & Mattheis Co., Boston, Mass.; R. E. Corson, Ray Corson Machinery Co., Denver, Colo.

Three top promotions within the sales department of Republic Rubber Division, Lee Rubber & Tire Corporation, Youngstown, O., have been announced by O. S. Dollison, vice-president and general manager.

G. L. Smith

The new sales manager and department head is G. L. Smith, former traveling sales manager. Mr. Smith was promoted to assistant sales manager in 1936 and became traveling sales manager in 1945.

Myron C. Meyer, assistant sales manager until the recent promotion, now replaces Mr. Smith as traveling sales manager. Mr. Meyer joined Republic in 1918. He has been assistant sales manager since early last year.

The third on the Republic staff to receive promotion is Ralph W. Deemer. His experience with the firm dates back to 1926. A sales correspondent for Republic since 1941, he now replaces Mr. Meyer as assistant sales manager.

The appointment of John S. King as manager of the Chicago branch house of Fairbanks, Morse & Company has been announced by R. H. Morse Jr., vice-president and general sales manager of the firm.

J. S. King

Mr. King became associated with Fairbanks, Morse & Company more than 25 years ago at the Beloit, Wis., plant. His most recent position was that of assistant manager of the Railroad Division. He will succeed Frank V. Roy, who will retire from his position on March 1, 1947.

A. C. Fetzer

Announcement is made of the election of A. C. Fetzer, vice-president, to the board of directors of the Mack Manufacturing Corporation of New York City.

Mr. Fetzer, who was formerly acting general sales manager, was at the same time appointed general sales manager.

YOUR MARKETS HAVE CHANGED—BUT HAS YOUR CRUSHER?

Your operation can be no more up-to-date than your crusher

American Crushers are designed and constructed for modern crushing efficiency and to provide the rapid production you need. Easy external adjustments and easy accessibility for screen changes, makes them especially suited for flexible operation. Their heavy-duty sectional construction permits easy dissembly and reassembly for change of location.

Americans offer a wide range of reduction and high capacities in many sizes of screenings, providing highest crushing efficiency at low operating cost.

Americans are not all-purpose crushers, but custom-built for your specific job. Capacities up to 250 TPH.

Send for informational bulletin and complete crushing data.

AMERICAN "ACS"

AMERICAN "30" SERIES

AMERICAN "24" SERIES

American PULVERIZER COMPANY

Originators and Manufacturers of Ring Crushers and Pulverizers

1059 MACKLIND AVE.
ST. LOUIS 10, MO.

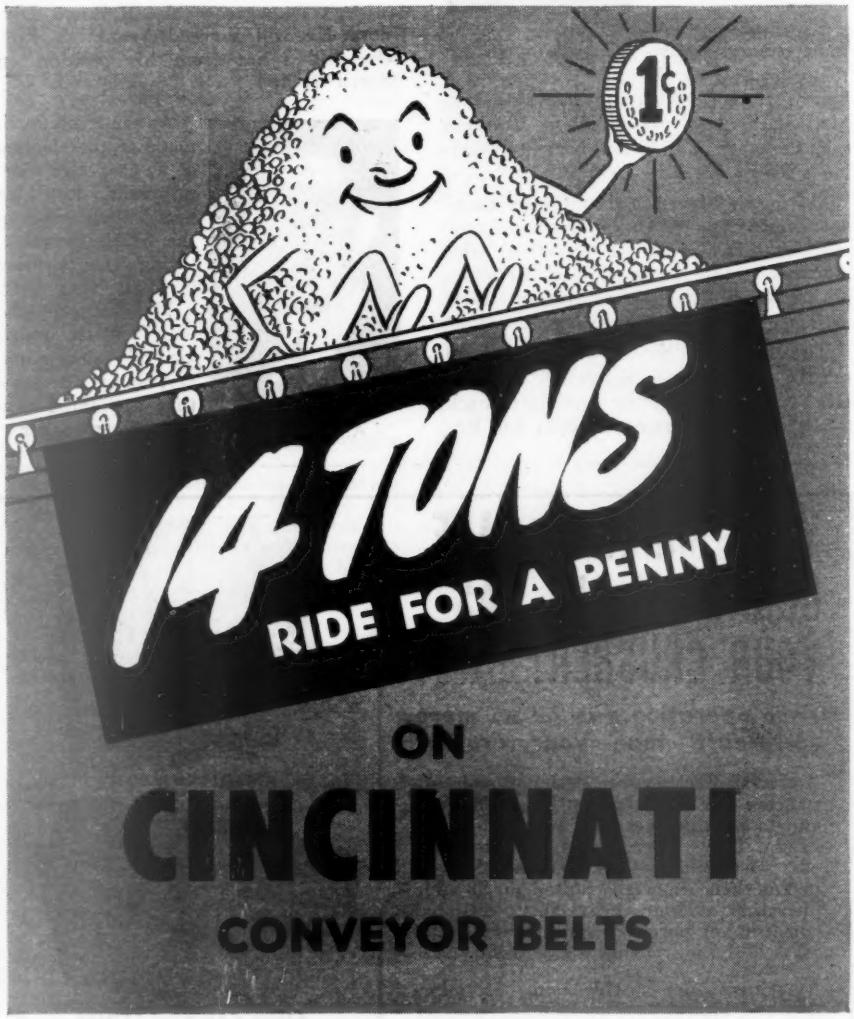
Joseph T. Ryerson & Son, Inc., of Chicago announce the appointment of Freeman X. Kinzie as West Coast representative of the Bearings and Babbitt Division. He will specialize in the sale of Ryertex nonmetallic bearings and Glyco babbitt metals, making his headquarters at the company's Los Angeles plant.

F. X. Kinzie

Mr. Kinzie, who has represented Ryerson in the Chicago and St. Louis areas for a number of years, succeeds O. K. Graef, whose resignation became effective November 1, 1946.

Effective December 7, the Chicago offices of Hewitt-Robins Incorporated were combined when the Robins Conveyor Division office was moved from 37 West Van Buren Street to the location of the Hewitt Rubber Division at 7 South Dearborn Street, Chicago 3. Enlarged quarters at the latter address are adequate to house the offices of both divisions.

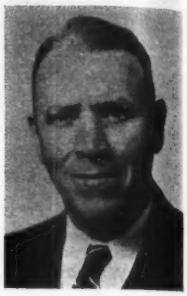
Charles F. Byerly, formerly Chicago industrial sales manager for the Toledo Scale Company, died on December 8 after an illness of several weeks. He joined Toledo in 1923 and was made district manager in 1926, a position which he held until several months ago when ill health forced him to confine his activities to less strenuous duties.



It's the BIG conveyor belt bargain for '47. Cincinnati Conveyor Belts make your pennies buy more conveying service in these days of shrunken dollars. Remember Cincinnati Low Belt Cost per Ton and Long Service when you replace conveyor belts this year. It pays BIG dividends. Ask for complete information.

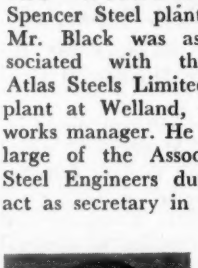
THE CINCINNATI RUBBER MFG. CO.
CINCINNATI 12, OHIO

John F. Black has been appointed general superintendent of the Buffalo, N. Y., plant of the Wickwire Spencer Steel Division of The Colorado Fuel & Iron Corporation.



J. F. Black

Before coming to the Wickwire Spencer Steel plant, Mr. Black was associated with the Atlas Steels Limited plant at Welland, Ontario, as assistant works manager. He has been director-at-large of the Association of Iron and Steel Engineers during 1946, and will act as secretary in 1947.



R. C. Judd

R. G. LeTourneau, Inc., Peoria, Ill., announces the appointment of Robert C. Judd as market research manager, to study applications of present equipment to present markets, analyze applications of present equipment to new markets, and study new markets for potential development of new products.

Before joining LeTourneau, Mr. Judd conducted his own sales research firm. He replaces Wendell Richards, who is resuming his district sales representative activities.

W. A. Rundquist has been appointed sales promotion manager for Pioneer Engineering Works, Inc., Minneapolis, in charge of advertising, sales promotion, and sales training.

W. A. Rundquist

Mr. Rundquist served with the Corps of Engineers during World War II as a post engineer, later as production liaison officer for the Upper Mississippi Valley Division, and finally in the office of the chief of engineers as administrative officer, Critical Components Section. Previously he had been associated with the Bell Telephone laboratories and the Minneapolis-Honeywell Regulator Company.

Robert F. Whitworth has been made division sales co-ordinator and George W. Murphy branch sales co-ordinator for the Gar Wood Industries, according to an announcement from W. H. Hammond, vice-president in charge of sales.

Legal Decisions

By LEO T. PARKER

Attorney at Law
Cincinnati, Ohio

During the past few weeks the higher courts in the different states have rendered numerous important and outstanding decisions, knowledge of which will greatly assist readers to *prepare* to win law suits in the future. We shall briefly review these decisions.

Must Prove Injury

Modern higher courts consistently hold that an employee who sues to recover compensation under the State Workmen's Compensation Act must prove his case in *all* details, or he can recover *no* compensation.

For illustration, in *Golinski v. Odin Company,* 48 Atl. (2d) 95, reported October, 1946, it was shown that an employee sued his employer to recover compensation under the State Workmen's Compensation Act, alleging that he was totally disabled as a result of silicosis.

The employee failed to prove *positively* that he had contracted the disease while working for his employer. Therefore, the higher court refused to allow the employee any compensation, saying:

"Claimant (employee) had the burden to prove all the essential elements of his case including the fact that his total disability was caused solely by silicosis . . ."

Eminent Domain

According to a recent higher court when land is taken by "eminent domain," every person having an interest in the land is entitled to share in the award.

In *Swanson v. Spokane Portland Cement Company,* 156 Fed. (2d) 442, reported August, 1946, the United States sued to acquire title to 340 acres of land under eminent domain, or appropriation laws. The higher court held that the Spokane Portland Cement Company, which held a mortgage on the land, was entitled to receive part of the money paid by the United States for the land.

Inspect Your Premises

It is certain that a great majority of injuries to patrons of nonmetallic product manufacturers and sellers are caused by defective floors. In a recent decision the higher court said that all property owners are bound to exercise "ordinary care" to keep floors and stairways in safe condition.

For example, in *Wood v. Tri-States Corporation,* 23 N. W. (2d) 843, reported October, 1946, a patron tripped and fell over a mat of the usual kind used to wipe mud from feet. It was made of numerous links or chunks of leather. The mat was not over one-half inch thick and the edges were *not* beveled or inclined.

The jury considered all testimony and decided that the proprietor was negligent in maintaining on the floor a mat of this ordinary construction with *vertical edges.* The jury allowed the patron heavy damages.

Complaint Dismissed

Generally speaking, a higher court will *not* prohibit construction and operation of a rock crushing plant in a restricted district, unless valid city ordinances clearly prohibit the *particular* kind of rock crushing plant.

For example, in *Salem v. Arnold,* 16 Ohio Supp. 159, it was shown that a company applied for a permit to construct a plant. Certain owners of nearby property filed suit for an injunction to prevent construction of the plant.

The officials of the company proved that the business had been conducted for almost nine years *close to its* intended *new* location. In view of this testimony the higher court refused to deny the company a permit to construct and occupy the new plant.

Use Tax Valid

It is well established law that a purchaser and user of materials must pay the state's "use" tax, although the merchandise was shipped in interstate commerce.

For example, in *Union Portland Cement Company v. State Tax Commission,* 170 Pac. (2d) 164, reported August, 1946, the testimony showed that the Union Portland Cement Company in Utah placed orders for coal with a company whose mine was located in another state.

The higher court held that the purchaser in Utah must pay the state "use" tax on all coal it received from outside the state. This court said that no purchaser need pay "sales" tax to a state on merchandise shipped in interstate commerce, but that it must under all circumstances pay the "use" tax.

Insurance Company Solely Liable

Considerable discussion has arisen from time to time over the legal question: If an employer has paid insurance to several insurance companies over a period of years, which company must pay compensation to an employee who becomes totally disabled from silicosis?

According to a recent higher court, in cases of progressive occupational diseases, the insurance carrier *at the time when a compensable disability occurred* is liable for the full disability although the exposure and progress of the disease may have accumulated over a period of time when *other* insurance companies were obligated.

For instance, in *Victor v. Industrial Accident Commission,* 172 Pac. (2d) 884, it was shown that one Victor, while employed as crusher operator by Emsco Refractories Company, sustained an injury consisting of silicosis due to exposure to silica dust. Victor was employed during various dates from 1928 to the date of the injury in 1943, and he did not work for any other employer. However, during these many years his employer had paid insurance premiums to several different insurance companies. But two years before Victor stopped work the insurance carrier was Colonial Insurance Company. In holding this company liable for full payment of compensation specified by the State Workmen's Compensation Act, the higher court said:

"To require an employee disabled with such a disease to fix upon each of the carriers or employers the precise portion of the disability attributable to its contribution to the cause of the malady is not in consonance with the required liberal interpretation and application of the workmen's compensation laws."

Confined to State

According to a recent higher court the Illinois Occupational Diseases Act does not extend to persons whose employment is beyond the limits of Illinois, notwithstanding the contract of employment was made in Illinois.

For example, in *Dur-Ite Company v. Industrial Commission,* 68 N. E. (2d) 717, reported November, 1946, it was shown that the Dur-Ite Company is engaged in the business of waterproof-cementing various kinds of structures such as bridges, viaducts and tunnels.

A man named Holmes was employed by the corporation in 1936 in Illinois. He worked six days on the Roosevelt viaduct, in Chicago, then went to Milwaukee, Wis. He was moved from place to place, and in 1936 he worked a total of 40 working days.

In March, 1938, Holmes became permanently disabled from the occupational disease of silicosis in California. He sued to recover compensation in Illinois. Although the lower court allowed the compensation, the higher court reversed the verdict, saying:

"Our conclusion is that the Workmen's Occupational Diseases Act does not extend to persons whose employment is beyond the limits of Illinois, even though the contract of employment was made in Illinois."

Seeler Breeches Contract

The higher courts consistently hold that a seller who breaches a valid contract or sale is liable for the *full* and complete damages, annoyance and loss of profits sustained by the purchaser.

For illustration, in *Consolidated Corporations v. Weiss,* 63 N. E. (2d) 669, it was shown that a manufacturer breached his contract to a contractor to make delivery of purchased merchandise on the date specified in the contract. The contractor sued for damages.

The testimony showed that the same quality merchandise was available on the market, but at considerably higher than the contract price.

The higher court held the seller liable for $4,000 damages to the contractor, and explained that when a seller breaches a valid sale contract, he is liable in damages to the purchaser in an amount equal to the difference between the contract price and the market price of the merchandise *on the date* the contract was breached.

$42,083 Damages

According to a recent higher court if the owner of equipment has no insur-

ance, and loans it, he is liable to heavy damages if he *fails* to know that the equipment is in *safe condition.*

In *Bonvillain v. Realty Operators, Inc.,* 26 So. (2d) 25, the testimony proved facts as follows: The owner of a hoist loaned it to a friend. The latter was using the hoist when it broke, and he sustained a severe injury to his back. The higher court allowed him $42,083 damages, and said:

"We would say rather that no matter where a particular hoist was situated, he (the owner) undertook to maintain it and keep it in proper condition."

Purchaser Violates Contract

A purchaser who buys equipment and fails to adhere to the contract *always* is liable to the seller.

For instance, in *Brandtjen v. Burd,* 192 S. W. (2d) 651, testimony was proved that a purchaser bought equipment under a written contract that contained a clause: "We warrant the goods . . . for one year, this warranty being limited to the furnishing at our factory of such parts as shall appear to us to have been defective in material and workmanship."

The purchaser traded in his old equipment and later proved that the new equipment did not perform satisfactorily.

The purchaser refused to pay for the equipment and demanded return of the old equipment, which he had traded in. The manufacturer refused this offer and the purchaser continued to use the new equipment for several months while corresponding with the seller.

The manufacturer sued the purchaser, proving that the latter had failed to return any defective parts.

The higher court held in favor of the manufacturer and said that when the purchaser sought to rescind the contract on the manufacturer's breach of warranty and guarantee, the purchaser did not have a right to keep and use the equipment pending return of the old trade-in equipment to him.

Also, this court held that when a buyer keeps in his possession and uses the subject of a sale, he forfeits *all* his legal rights to rescind the contract.

Equipment Not Taxable

It is well established law that goods, merchandise, or equipment placed in storage in any state are taxable by the authorities in the state where they are stored. But if these items *move* into the state in *interstate* commerce they are *not* taxable.

For example, if engines are used to switch freight cars used to transport merchandise from one state into another, such engines are used in interstate commerce, and they are *not* taxable.

And also see *Union v. Utah State Tax Commission,* 162 Pac. (2d) 804, reported November, 1946. It was shown that a corporation used new equipment in Nebraska. Subsequently it transferred the equipment to Salt Lake City, where, again, it was used in interstate business.

The Utah State Tax Commission assessed a use tax of 3 percent upon this equipment based upon the purchase price.

The higher court refused to tax the equipment.

For comparison, see *Henneford v. Silas Mason Company,* 300 U. S. 577, 57 S. Ct. 524.

Statute of Frauds

The law in all states provide that verbal contracts for sale of real property or lease of real property for more than one year *are void.* This law is known as the "Statute of Frauds" law applicable alike in all states. But according to a late higher court decision if the *lessor* spends money on the real property the Statute of Frauds is *not* applicable.

For illustration, in *Beverely Hills Nat. Bank & Trust Company v. Series,* 172 Pac. (2d) 894, it was shown that the owner of real property leased it to a tenant under an *oral* lease for five years. The tenant paid money for machinery and for substantial improvements on the property.

Later the property owner sued the tenant to get possession of the property on the grounds that the owner's lease was void. The higher court refused to agree with this contention, saying:

"Aside from the expenditures necessary in setting up his machinery, he (tenant) spent substantial sums to remodel the premises . . ."

Pure Negligence

According to a recent higher court the State Highway Department or highway contractors are *not* insurers of safety of travelers on highways. They perform their legal duty by keeping the highways in reasonably safe condition for travel. When they erect signs and warnings to enable users of such highways, *exercising ordinary care and prudence,* to avoid injuries, they cannot be held liable for injuries to automobile drivers.

For instance, in *Epps v. S. C. State Highway Department,* 39 S. E. (2d) 198, reported November, 1946, an automobile driver was killed one foggy night when his car plunged into a river which had no guard rails, and no *illuminated* signs to warn travelers of the danger. His dependents sued for damages. But the higher court held the contractor not liable, and said:

"The visibility being only 15 to 20 feet, it was negligence as a matter of law for the car to be operated at a speed greater than that in which it could be stopped within such distance."

Home Work

Under all circumstances an employee who expects payment for work on Sundays and evenings at home must positively *prove* that his employer *agreed* to pay for extra services. Otherwise he cannot recover a favorable verdict.

For example, in *Perlman v. Skolnick Building Corporation,* 39 Atl. (2d) 186, the testimony showed facts, as follows: An engineer was employed at an agreed wage of $100 a week on a forty-eight hour weekly basis, with time and one-half for overtime. He worked for seven months, when he was discharged, and was given a check for his last week's pay. The next day he returned the check with a demand for $1,738 for overtime on Sundays and holidays, and evening home work.

The engineer *proved* that he had worked the necessary overtime on Sundays and evenings to earn $1,738, but he *failed to prove* that his employer *agreed* to pay extra for his work at home. Therefore, although the lower court held in favor of the engineer, the higher court reversed the verdict, saying:

"Assuming that the plaintiff (engineer) did work Sundays and evenings at home, he cannot recover pay for that service in addition to his regular wages. He . . . does not show that any responsible officer of the corporation (employer) agreed to pay him for it as overtime . . ."

Fair Labor Standards Act

The Fair Labor Standards Act clearly provides that all employees "necessary to the production" of goods for interstate commerce must be paid wages specified by the Act.

For example, in *Walling v. McCrady Const. Company,* 156 Fed. (2d) 932, reported September, 1946, it was shown that a contractor was engaged in work on public roads, streets and bridges. Also, the contractor was engaged in the construction of new buildings designed to enlarge or replace outmoded buildings of an industrial plant and thus continue operation of the plant which shipped its products in interstate commerce.

The United States sued the contractor on the contention that he must pay wages specified by the Fair Labor Standards Act, plus one and one-half times these regular wages for overtime. These employees consisted of foremen, timekeepers, drivers, bricklayers, operators of cranes and other machines, laborers, watchmen and the like.

The contractor argued that he was not engaged in the "production of goods for commerce" within the coverage of this Federal Wage Law.

It is interesting to observe that the higher court held the contractor must pay hourly wages specified by the Fair Labor Standards Act, plus time and one-half for overtime. This court said:

"It is clear that the purpose of the Fair Labor Standards Act was to extend federal control in this field throughout the farthest reaches of the channels of interstate commerce. Vehicular roads and bridges are as indispensable to the interstate movement of persons and goods as railroad tracks and bridges are to interstate transportation by rail. If they are used by persons and goods passing between the various states, they are instrumentalities of interstate commerce. Those persons who are engaged in maintaining and repairing such facilities should be considered as 'engaged in commerce' because without their services these instrumentalities would not be open to the passage of goods and persons across state lines."

Both Employers Liable

It is not often that a court will hold that an injured employee worked for two employers at the same time. However, according to a recent higher court the fact that an employee has both a general and a special employer is not inconsistent with the legal relation of employer and employee.

For example, in *Dennison v. Peckham Road Corporation,* 68 N. E. (2d) 440, reported September, 1946, the testimony showed that a contractor who contracted to excavate a cellar rented a power shovel and engaged an employee of the owner of the shovel to assist in operating the shovel. The employee's wages were paid by the excavating contractor. Excavation had been in progress only four hours when the employee was fatally crushed by the shovel.

In subsequent litigation the higher court held that at the time the employee sustained the fatal injury, he was employed by *both* the excavating contractor and the owner of the shovel. This court held both employers liable for payment of compensation to the decedent's dependents. This court said:

"The fact that Bouley (contractor) had agreed to carry the decedent on its payroll while the work of excavation was being done did not serve to withdraw the decedent from the general employ of Peckham (owner of shovel); nor is that relationship altered by the fact that the decedent may have been subject temporarily to direction by employees of Bouley as to certain details of work at the site of the excavation."

6 Percent Interest on Debt

A recent higher court held that if an employer fails to make prompt payments on compensation claims for injuries to employees legal rate of interest must be paid on the delayed compensation payments.

For example, in *Bourdeaux v. Brighton Ice Company,* 20 N. W. (2d) 393, reported 1946, it was shown that an employee named Bourdeaux sustained an accidental injury to his back arising out of and in the course of his employment. His employer delayed in paying the compensation claim and the higher court allowed Bourdeaux 6 percent interest on the delayed payment, although no state law specifically authorized the payment. The court said:

"Although the Compensation Act makes no mention of interest in case of delay of compensation payments . . . the general interest statute applies to such a situation."

Company Officials Not Negligent

Modern higher courts consistently hold that unless an injured employee proves that "willful negligence" of his employer results in an injury, he cannot sue and recover additional compensation under the State Workmen's Compensation Act.

See *Central Company v. Industrial Accident Commission,* 152 Pac. (2d) 33, where an employee was seriously injured while loading material onto a motor truck. He sued his employer for extra compensation, contending that the employer was "willfully" negligent in failing to provide a "safe" loading platform. Since the employee failed to prove his case, the higher court refused to hold the employer liable for additional compensation.

Questions and Answers

[Mr. Parker will be glad to answer questions regarding legal problems of PIT AND QUARRY readers. Questions should be addressed to Leo T. Parker, Legal Editor, PIT AND QUARRY.—Ed.]

Legal Editor: I noted in a recent issue of PIT AND QUARRY that Henry Kaiser has a plant in Pleasanton, Calif., called the Permanente Cement Company. Would I be subject to prosecution if I were to use the term "Permanente" on cement products of my own? Would I be subject to prosecution if I changed the spelling to "Permante"? Have you any sample partnership forms, contracts, or agreements that you could send to me?—H. H. B.

Answer: Legally, a trade-mark is a name, mark, or other distinctive symbol which indicates the *origin* of the merchandise to which it is affixed. In other words, the primary object of a manufacturer's adopting a trade-mark is to establish in the minds of the buying public the quality and kind of product his mark represents. It is not, as many persons believe, the name of the maker of the product. The latter is a tradename.

For illustration, the Supreme Court of the United States, in the leading case of *Company v. Trainer,* 101 U.S. 51, clearly explained the legal status of a trade-mark, saying:

"Everyone is at liberty to affix to a product of his own manufacture a symbol or device, *not previously appropriated,* which will distinguish it from articles of the same nature manufactured or sold by others, and thus secure to himself the benefits of increased sale by reason of any peculiar excellence he may have given to it. The courts will protect him in its exclusive use, either by the imposition of damages for its wrongful appropriation, or by restraining others and compelling them to account for profits made on a sale of goods marked with it."

Since a trade-mark is intended to indicate the origin of merchandise, it is legally the exclusive property of the owner *forever.*

Two or more persons or firms may without infringement use identically the same trade-mark on *non-competing* merchandise. However, your product is competing or at least similar to Kaiser's products. Therefore, you cannot legally use the name or mark "Permanente." If it is not trade-marked by Kaiser, you would be liable under unfair competition laws which are equally as effective. Also, you cannot change the spelling of the name and use it without liability.

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TRAFFIC News Digest

CENTRAL FREIGHT ASSOCIATION DOCKET

Docket 82236 (2)—Limestone, ground or pulverized, unburned, carload minimum weight 60,000 pounds. Establish on, from Narlo, Maple Grove, O., and other northwestern Ohio origins to Trade City, Pa., 259 cents net ton, subject to Ex Parte 148-162 increase.

Docket 82255 (2)—Slag (a product of iron and steel blast or open-hearth furnaces, having no commercial value for further extraction of metal), other than granulated, not screened, in open-top cars, in bulk, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, but not less than 60,000 pounds. Establish on, from East Chicago, Ind., to Wabash, Ind., 121 cents net ton, subject to Ex Parte 148 increases.

Docket 82261 (2)—Sand, all kinds and gravel, in open-top cars, carload minimum weight 90 percent of the marked capacity of the car except that when car is loaded to full visible or cubical capacity, actual weight will apply. Establish on, from Coshocton, O., to Pleasant Valley, O., 88 cents net ton via P.R.R.-Zanesville, O.,-B.&O. Railroad; to Toboso, O., 94 cents net ton, subject to Ex Parte 148-162 increase.

Docket 82275 (2)—Sand (bank, river or torpedo) or gravel, in open-top cars, carload minimum weight 90 percent of marked capacity of car except that when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Standard Pit, Ind., to Eckerty, 138 cents; French Lick, 143 cents; Jasper, 132 cents; Taswell, Ind., 138 cents net ton, subject to any Ex Parte 148 or 162 increases.

Docket 82277 (2)—Limestone, ground or pulverized, unburned, carload minimum weight 60,000 pounds. Establish on, from Piqua, O., to Boston, Mass., 528 cents net ton, subject to Ex Parte 148-162 increases.

Docket 82278 (1)—Sand and gravel, crushed stone and screenings, carload. Establish on, from Sand Products Corporation located on P.R.R. Docket number 4, west of State Street, Erie, Pa., to Team Tracks and Sidings of Industries on P.R.R. tracks west of State Street, 28 cents per ton; to Team Tracks and Sidings of Industries on Pennsylvania, east of State Street, 42 cents per ton, subject to Ex Parte 148-162.

Docket 82287 (2)—Slag (refuse product of brass, copper, lead or zinc furnaces having no commercial value for further extraction of metal), other than granulated, not screened, in open-top cars, in bulk, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, but not less than 60,000 pounds. Establish on, from Whiting, Ind., to Alexandria, 149 cents; Richmond, 154 cents; Wabash, Ind., 121 cents net ton, subject to Ex Parte 148 and 162 increases.

Docket 82304 (2)—Slag, in lump form (not granular), in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply. Establish on, from Detroit, Mich., to Chicago, Ill., 160 cents net ton, subject to Ex Parte 148-162 increase.

Docket 82310 (1)—Crushed stone, slag or gravel, coated with oil, tar or asphaltum, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply. Cancel rates on, from Bridgeport, O., to points in Official Classification Territory, representative of which are Alliance, Bowerston, Canton, O., Cliftonville, W. Va., Dillonvale, Hopedale, O., Louise, W. Va., Massillon, Minerva, Piney Fork, Smithfield and Zanesville, O. Classification basis to apply in lieu thereof.

Docket 82325 (1)—Sand, all kinds and gravel, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Hamilton, O., to Miamisburg, O., 72 cents net ton, subject to Ex Parte 148-162.

Docket 82332 (1)—Crushed stone, in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Russellville, Ind., to Raven, Scotland, Chrisman, Cherry Point, Garnes, Metcalf, Hume, Ill., 77 cents; McCown, Newman, Murdock, Camargo, Ill., 84 cents; Tuscola, Ficklin, Garrett, Atwood, Pierson, Hammond, Long Creek and Decatur, Ill., 88 cents net ton, subject to Ex Parte 148-162.

Docket 82333 (1)—Stone, crushed, in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Russellville, Ind., to representative Indiana destinations, rates as shown in Exhibit B:

Exhibit B

(Rates in Cents per Net Ton)

To (Representative)	Proposed Rates
Marshall, Bloomingdale, Roachdale, Ind.	44
Mecca, Dana, Maplewood, Ind.	61
Brazil, Indianapolis, Ind.	83
Hillsdale, Hollowell, Ind.	55
New Palestine, Ind.	88
Reedville, Ind.	94
Morristown, Arlington, Ind.	99
Rushville, Ind.	105
Connersville, Brownsville, Ind.	116
Liberty, Cottage Grove, Ind.	121

Subject to Ex Parte 148-162

Docket 82337 (2)—Sand (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding or polishing, loam, moulding or silica) and gravel, in open-top cars only, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Peru, Ind., to

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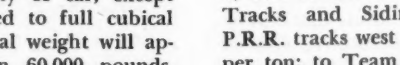

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Now available with remote control recording and operating devices, and total weight recorders.

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Schaffer Poidometer Co., 2828 Smallman St., Pittsburgh 22, Pa.

PROPORTIONING

Sidney, Ind., 88 cents per net ton, subject to Ex Parte 148-162 increases.

ILLINOIS FREIGHT ASSOCIATION DOCKET

Docket IRC 511-561—Limestone, agricultural, unburned, in bulk in open-top cars, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. To cancel rate of 55 cents per net ton (subject to Ex Parte 148), from Lehigh, Ill., to St. Anne, Ill., and Sheldon, Ill., allowing class or combination rates to apply in lieu thereof.

Docket 10978-M—Sand, gravel, crushed stone, etc., to cancel rates on sand, gravel, crushed stone, etc., from Joliet, Kankakee, Lehigh and Thornton, Ill., to Topeka, Ill., as published in Item 4210-A of Illinois Freight Association tariff 33-D, permitting rates in tariffs of the Alton Railroad, C.R.I.&P. Railroad and Illinois Central Railroad to apply.

DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION SUBMITTALS

Docket 36618 (Shipper; suggested by carrier)—Establish to Mobile, Ala., on gypsum rock, crude or crushed (not ground) in bulk carload 80,000 pounds, rates of 380 cents net ton from Jacksonville, Florida and 400 cents per net ton from Pt. Wentworth and Savannah, Ga.

SOUTHWESTERN FREIGHT BUREAU DOCKET

Docket 40913 (2)—Silica sand, Denny, Hickory, Rolf and Sulphur, Okla., to New Orleans, La. To establish rate of $3.24 per ton of 2,000 pounds, on silica sand, carload minimum weight same as shown in Item 180 of Southwestern Lines tariff 162-S from Denny, Hickory, Rolff and Sulphur, Okla., to New Orleans, La.

Docket 40968 (1)—Gypsum rock, points in South Dakota to Dewey, Okla. To establish the following rates in cents per 100 pounds on gypsum rock, mine run or crushed (not ground), carloads, minimum weight marked capacity of car, from Piedmont, Rapid City, Hot Springs and Minnekahta, S. D., to the points shown below:

To:	Rates
Dewey, Okla., Oglesby and La-Salle, Ill., Hannibal, Mo., Ottawa, Ill.	24
Linwood, Ia.	22
Louisville, Nebr., Mason City, Ia..	19
Des Moines, Ia., West Des Moines, Ia.	20
Buffington, Ind.	25
Chanute, Kan.	23
Kansas City, Mo., Steelton, Minn..	21
St. Louis, Mo.	26

TRUNK LINE ASSOCIATION DOCKET

Docket 43929 (Shipper)—Lime, carload, minimum weight 30,000 pounds and 50,000 pounds, from Lime Crest, N. J., to various stations on the B.&O. Railroad, B.&L.E. Railroad, Erie Railroad, N.Y.C. (W) Railroad N.Y.C.&St.L. Railroad, P.R.R., P.&L.E. Railroad and Y.&S. Railroad in Pennsylvania and Ohio; rates on basis of Interstate Commerce Commission docket 16170 scale. Reason: On same basis as rates applying from other points.

Docket 43931 (Shippers)—Stone, natural (other than bituminus asphalt rock), crushed, without coating of oil, tar and/or asphaltum, carload minimum weight 90 percent of marked capacity of car, etc., from Lake Junction and Hopatcong Junction, N. J., to Park Place, Pa., $1.43 per net ton. Reason: On same basis as rates applying from and to other points.

Docket 43932 (Shippers)—Stone, natural (other than bituminous asphalt rock), crushed, not otherwise indexed by name, carload minimum weight 90 percent of marked capacity of car, etc., from White Haven, Pa., to New Milford, Pa., $1.43 per net ton, in lieu of current rate of $1.79 per net ton. Reason: On same basis as rates applying from and to other points.

WESTERN TRUNK LINE NEW APPLICATIONS

Docket X-E-41-798—Agricultural limestone (for soil treatment), carload minimum weight 90 percent of marked capacity of car, but not less than 40,000 pounds, from Iowa shipping points, to destinations on all Iowa lines (single line application), for distances of 165 miles to 200 miles. Proposed—$1.00 per net ton.

Docket E-41-799—Sand, gravel, stone, crushed, carload, as described in item 200-Q Supplement 54 to Western Trunk Line Tariff 210-A, from Kansas City, Kan., and related origins as named in Item 200-Q, Western Trunk Line Tariff 210-A to Lansing, Kan., and intermediate Kansas points on Union Pacific Railroad. Proposed, publish a note in Item 200-Q, Western Trunk Line Tariff 210-A, reading as follows: "Rates authorized under this item as applicable on sand, gravel or crushed stone, carload to Leavenworth, Kan., will also apply to Lansing, Kan., on the Union Pacific Railroad and be applied as maximum at intermediate points. Routing same as to Leavenworth, Kan., on the Union Pacific Railroad."

Docket E-203-54—Slag (refuse product of open-hearth furnaces having no commercial value for further extration of metal) other than granulated, not screened; in bulk in open-top cars, from East Chicago, Gary, Indiana Harbor, Ind., South Chicago, Ill., Whiting, Ind., to Merton, Wis. Proposed—7 cents per 100 pounds, plus X-148.

Docket X-E-41-801—Stone, crushed, in bulk in open-top cars, minimum weight 40,000 pounds, from Sturgeon Bay, Wis., to Sturgis, Mich. Proposed, $2.62 per ton of 2,000 pounds. (By shipper.)

Docket E-41-802—Gypsum, crude or crushed (not ground) in bulk, carload minimum weight 80,000 pounds from Centerville, Ia., to Kosmosdale, Ky. Proposed—$4.00 per ton of 2,000 pounds. (By shipper.)

Docket E-41-803—Sand, gravel, crushed, broken and/or ground stone and rip rap, as described in Western Trunk Line tariff 209-D, from Watertown, S. D., to destinations in South Dakota as shown below:

To:	Rates Present	Proposed
Fife	125	118
Ipswich, Frederick..	140	133
Bowdie	158	150
Selby	162	158
Mobridge	173	170
McIntosh	200	193
Red Elm	222	213

Model 3030 Breaker operating in Virginia Department of Highways quarry at Alta Vista.

FIGURES DON'T LIE...

Crusher Speed R.P.M.	250	690	1000
Tons Per Hour	185	175	135
Percentage Retained on 2" Screen	34.0	5.0	.6
Percentage Passing 2" Screen and Retained on 1" Screen	26.0	24.0	11.0
Percentage Passing 1" Screen and Retained on 3/8" Screen	21.0	34.0	34.0
Percentage Passing 3/8" Screen	18.0	37.0	54.4
H.P. Required	70	100	150

Compare these performance figures with your own production reports. And remember you get only cubical aggregate from the Dual Impact Action of the New Holland 3030 Breaker . . . produces any size from ag lime to road ballast.

Write Dept. V-1 for complete performance data and full Breaker details.

New Holland Manufacturing Company

Mountville, Pennsylvania

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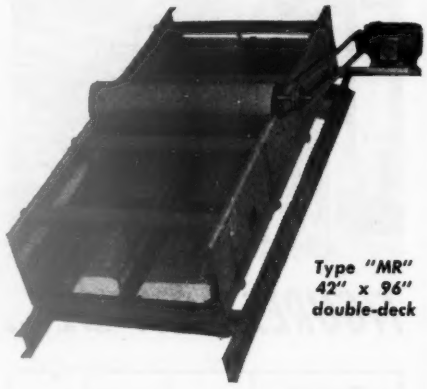

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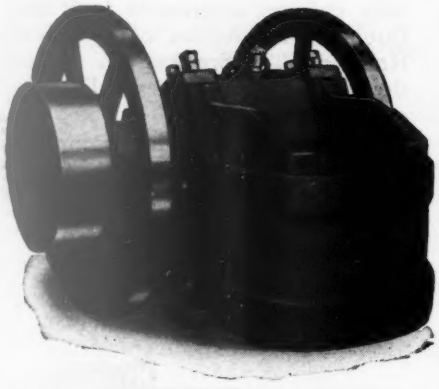

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Trade Literature

The pieces of literature listed below can be obtained direct from the manufacturers named, or requests can be addressed to Pit and Quarry's "Service to Readers" Department.

LET'S CONSIDER FACTS. 4 pages. Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn.

THE AD MOTOR GRADER. 32 pages. Catalog No. MS-300-A. Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

TYPE LS STATIONERY DIESEL ENGINE. Bulletin No. L-31. TYPE LS SUPERCHARGED DIESEL ENGINE. Bulletin No. L-32. TYPE LS GAS DIESEL ENGINE. Bulletin L-51. All 4 pages. Cooper-Bessemer Corp., Mount Vernon, O.

ERIE TYPE "M" PORTABLE CEMENT PLANT. 2 pages. Form M-1. Erie Steel Construction Co., Erie, Pa.

POSITIVE GRIP ELECTROLINE-FIEGE WIRE ROPE CONNECTORS. 8 pages. Bulletin F-2. Electroline Co., 4121 S. LaSalle Street, Chicago.

SERVING AMERICA'S PEACETIME NEEDS. 12 pages. The White Motor Company, Cleveland, O.

USE AND APPLICATION OF CROSBY WIRE CLIPS. Pocket-size card. The American Hoist & Derrick Company, St. Paul, Minn.

TYPICAL EXAMPLES OF B. F. GOODRICH DEVEOPMENT IN RUBBER. 22 pages. B. F. Goodrich Company, Akron, O.

CONSOLIDATED GASOLINE-DRIVEN FLOODLIGHT UNIT. 2 pages. Consolidated Diesel Electric Corporation, Mount Vernon, N. Y.

HARDINGE CONICAL SCRUBBERS. 4 pages. Bulletin No. 37-A. Hardinge Company, Inc., York, Pa.

MS&A INDUSTRIAL GAS MASKS. 4 pages. Bulletin ED-11. Mine Safety Appliances Co., Braddock Thomas and Meade Streets, Pittsburgh 8, Pa.

AIRCO FLAME HARDENING APPARATUS. 14 pages. Catalog No. 90. Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.

BUDA JACKS. 8 pages. Bulletin No. 1040D. The Buda Company, Harvey, Ill.

THE UNIVERSAL 546-P PORTABLE PRIMARY CRUSHING UNIT. 4 pages. Bulletin No. 56. Universal Engineering Corporation, Cedar Rapids, Ia.

AIRCO CAMOGRAPHS NOS. 4 & 5 OXY-ACETLYENE CUTTING MACHINES. Air Reduction Sales Company, 60 E. 42nd St., New York 17, N. Y.

BELTING CATALOG, HEWITT RUBBER DIVISION. Hewitt-Robins, Inc., Buffalo, N. Y.

THE HD-7 DIESEL TRACTOR. 24 pages. Catalog No. MS-290 A. Allis-Chalmers Mfg. Co., Tractor Division, Milwaukee 1, Wis.

WASHING AND CLASSIFYING EQUIPMENT. 28 pages. Catalog No. 46. Eagle Iron Works, 129 Holcomb Ave., Des Moines, Ia.

VULCAN IRON WORKS PRODUCTS. 12 pages. Bulletin No. A-412. Vulcan Iron Works, 50 Church Street, Wilkes-Barre, Pa.

THE NEW WARCO ROTARY SCRAPER. 4 pages. W. A. Riddell Corp., Bucyrus, O.

THORNTON AUTOMATIC LOCKING DIFFERENTIAL. Manual. 32 pages. Thornton Tandem Co., 8701 Grinnel Avenue, Detroit 13, Mich.

BLAW-KNOX FOUR ROPE BUCKETS. 40 pages. Catalog 2059. Blaw-Knox Company, Pittsburgh, Pa.

THE TYPE OG STANDARD SQUIRREL CAGE MOTOR. 12 pages. Bulletin No. 720. The Louis Allis Co., Milwaukee 7, Wis.

BULLETIN No. 30R. The OK Scale Co., 30 Southwood Drive, Kenmore 17, N. Y.

BRAKE LINING. 44 pages. Catalog describing Grey-Rock balanced brake lining and its uses. United States Asbestos Division of Raybestos-Manhattan, Inc., Manheim, Pa.

YOUR HAND TRUCK PROBLEMS SOLVED AT LAST. Melooz Manufacturing Company, Inc., 1311 West Washington Blvd., Los Angeles 7, Calif.

TRANSITIER LIFT TRUCKS. Model No. 147 and Model No. 247. Transitier Truck Company, Portland, Ore.

UNION WIRE ROPE DATA FILE, nine booklets. Union Wire Rope Corporation, 2174 Manchester Avenue, Kansas City 3, Mo.

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Test the quality and extent of your sand—gravel—clay—kaolin—rock and mineral deposits easily and quickly by using Acker portable core drills and sampling tools.

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CONCRETE MANUFACTURER

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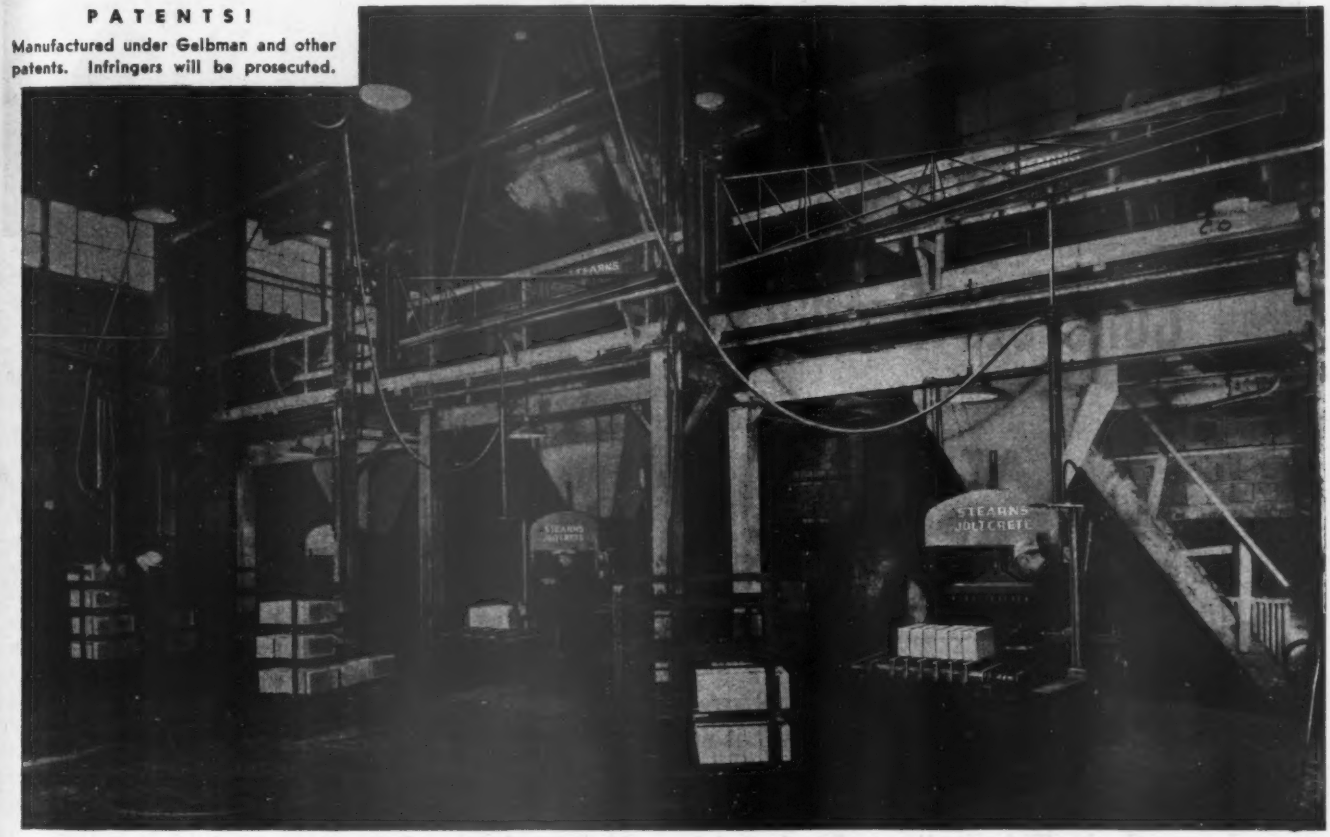

Part of Cleveland Builders' Supply Co. plant, Cleveland, Ohio

12,500,000!

— that's the number of quality 8" equivalent block

produced by *ONE* Stearns Joltcrete

This machine, shown above, left, purchased in 1940 by the Cleveland Builders' Supply Co., is still going strong—well on its way toward 13,000,000 block.

Maintenance costs* during this period have not exceeded *1/20 of a cent per block! **— and the machine costs less than $9500.00. What — other than Joltcrete — gives so much for so little? In 1946 the four No. 9 Joltcrete machines operating in this plant produced more than 10,000,000 8x8x16 in. block or their equivalent. This is believed to be the largest production of any plant in America.**

These figures, supplied by Jay Ehle, production manager of the company, should answer the question, *"How good is a Joltcrete?"*

ASK ANY OWNER!

Write today for literature describing the outstanding features of this machine that produced from 9 to 11 quality 8 in. units per minute.

STEARNS
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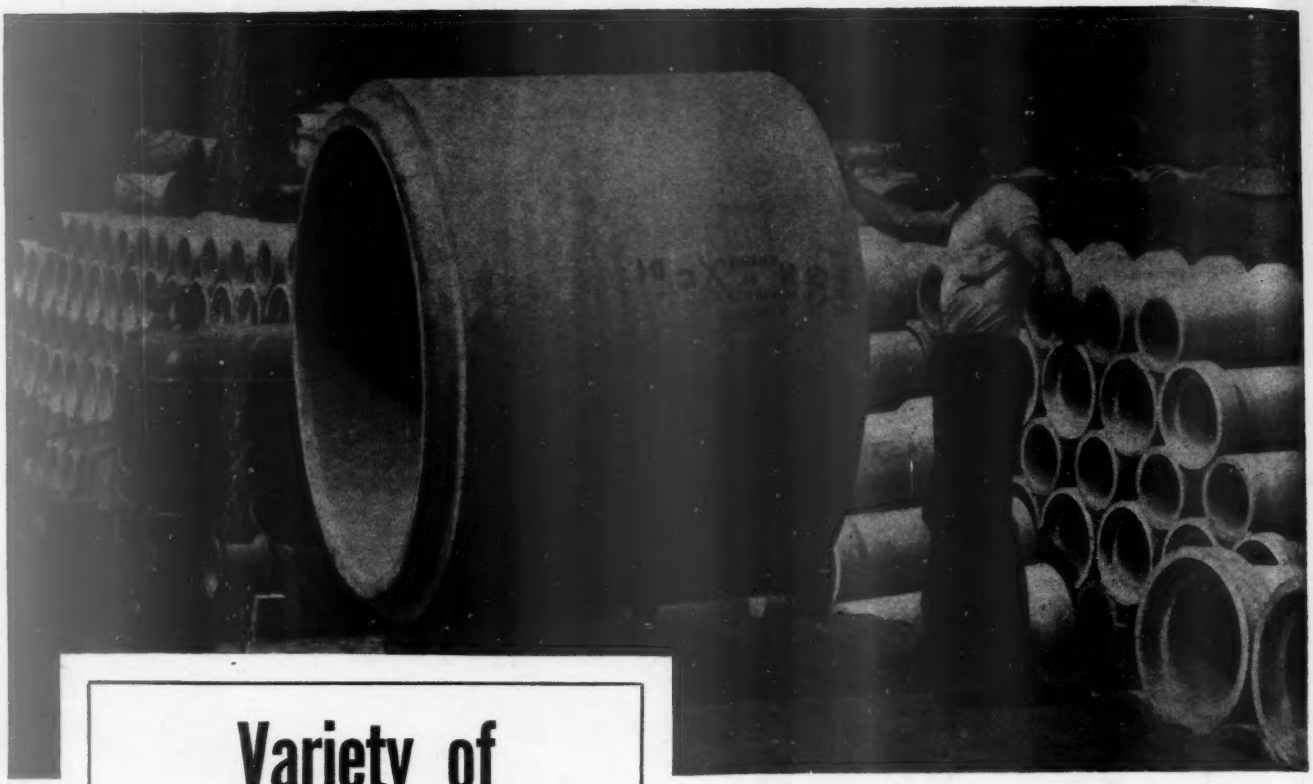
Manufacturers of vibration and tamping-type blockmakers . . . Mixers . . . Skip Loaders . . . Yardhoists.



CONCRETE PIPE made with Duraplastic at Neville Island, Pittsburgh, Pa., plant of the Concrete Products Company of America.

Variety of Concrete Products

made with

ATLAS DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

Experience of hundreds of manufacturers shows that Duraplastic cement makes superior concrete products without additional expense or unusual changes in manufacturing methods. This applies to block, brick, pipe, drain tile, silo staves and other concrete products.

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PQ-D-45

ATLAS DURAPLASTIC

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AIR-ENTRAINING PORTLAND CEMENT

MAKES SUPERIOR CONCRETE PRODUCTS AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel—Sunday Evenings—ABC Network*

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1947 Edition CONCRETE INDUSTRIES YEARBOOK

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Limited number
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Price — only $1.00

Yes, the big, new, completely rewritten 1947 Edition of the CONCRETE INDUSTRIES YEARBOOK—famous, up-to-the-minute encyclopedia handbook of the concrete industries—is now ready for immediate delivery.

Its 100 pages are profusely illustrated and literally filled with all kinds of down-to-earth, ready-to-use, practical facts, data, methods, procedures, suggestions, and ideas —actually a concise combination of the "know how" of the keenest brains in all phases of the concrete industries.

In simple, explicit, easy-to-understand language the 1947 Edition of the CONCRETE INDUSTRIES YEARBOOK will tell you—how to step-up production, how to lower costs, how to improve quality, how to increase profits, how to lay-out equipment for most efficient operation, how to solve tough production problems—and a host of similar, valuable facts. In addition, it will put at your finger tips—illustrations and descriptions of all the important types and makes of equipment.

Regardless of whether you've been in the concrete business for 30 years . . . or . . . plan to enter it tomorrow—it will certainly pay you and every key man in your organization to own a copy of the 1947 Edition of the CONCRETE INDUSTRIES YEARBOOK. Advance orders already indicate that the big, new, 1947 Edition will be sold out in a hurry.

Remember—there are only a limited number of copies. Better order right now and avoid disappointment. Price — only $1.00 a copy.

See copies of the 1947 Edition at Booth 45—Concrete Industries Exposition.

NEWS OF CONCRETE MANUFACTURERS

Illinois Brick Company Producing Concrete Units At Rate of 25,000 per Day

According to an announcement released by John Goodridge, president of the Illinois Brick Company of Chicago, the firm's new $350,000 concrete block plant in that city was scheduled to begin production in January.

The initial production rate was set at 25,000 standard 8- by 8- by 16-inch units per day. The management contemplates adding a second and a third shift as soon as new workers can be employed and trained. The present rate of production would amount to a capacity of approximately 6,250,000 blocks per year.

The big plant, located in the Blue Island section of Chicago, is seven stories high. It was designed and built under the direction of Hugo Filippi, vice-president and chief engineer of the firm, who is also chairman of the committee on block plant design and operation of the National Concrete Masonry Assn.

Lime-Pozzuolanas Featured In Foreign Block Industry

Recent literature from abroad has carried descriptions of lime-pozzuolanas in the manufacture of building blocks. These materials are used because of their low cost or because of some special properties imparted to the units by the pozzuolanas. They are said to lend themselves to the incorporation of metallic powders, such as aluminum, or organic foaming agents, for the production of low-cost light-weight blocks. Greater strength can be obtained by steam curing for a brief period at moderate pressures.

Such building units reportedly have superior cold- and heat-insulating properties. A typical formula for porous blocks is as follows: 150 parts of lime, 20 of cement, 80 of slag, 550 of sand by weight; aluminum powder and water are added.

Consolidated Rock Products Pumps Concrete on Big Job

Approximately 15,000 cubic yards of ready-mixed concrete was delivered to the forms of the new May Company Department Store in Los Angeles this fall by the Consolidated Rock Products Company using the Pumpcrete method.

Truck-mixers were charged at one of the company's nearby batch plants. The trucks backed up a ramp at the construction site, dumping their loads to a re-mixer set above a Rex Model 200 Pumpcrete machine. An 8-inch pipe line composed of 10-foot pipe sections carried the concrete to all parts of the building. One of the largest pours was 406 cu. yds. of concrete in a 10-hour shift.

C. R. Neff, Products Maker For 30 Years, Dies at 74

Charles R. Neff, co-founder of The Neff & Fry Company, Camden, O., died at the age of 74 on January 4, 1947. He and M. R. Fry began to manufacture concrete farm silos in 1916. Four years later the company expanded its activities to include the manufacture of commercial and industrial bins of both monolithic and concrete stave construction.

When Neff & Fry started making farm silos, they were both rural mail carriers, handling the silo work in their spare time. During the ensuing 30 years, the business has grown to national scope. N. & F. storage bins have been erected all over the country. To those personally acquainted with the situation, it is amazing to find a business of such size and importance located in a town of less than 1,000 population.

Mr. Neff was treasurer of The Neff & Fry Company at the time of his death.

James Carnwath, manager of Concrete Pipes, Ltd., of Woodstock, Ont., Canada, was re-elected to the Woodstock Public Utilities Commission in recent municipal elections.

Coming Events

February 17-18, 1947 — Chicago. 41st annual convention, Sand-Lime Brick Association, Hotel Sherman.

February 17-20, 1947 — *Chicago.* Annual meeting and exhibit, National Concrete Masonry Association, Hotel Sherman.

February 24-26, 1947—St. Louis, Mo. 39th annual national convention, American Concrete Pipe Association, Statler Hotel.

March 5-7, 1947 — Los Angeles. 17th annual convention, National Ready Mixed Concrete Association, Biltmore Hotel.

(For announcements concerning meetings of groups representing nonmetallic mineral industries, see page 59.)

Program for 27th Meeting Of N.C.M.A. at Chicago Announced by Dienhart

E. W. Dienhart, executive secretary of the National Concrete Masonry Association, has released an outline of the program planned for the association's 27th annual convention, which will be held February 17 to 20 at the Hotel Sherman in Chicago.

In addition to the division meetings, reports, elections, panels and other customary convention features, there will be a concrete industries exposition and a trip to the Illinois Brick Company's new Blue Island plant. The convention schedule follows:

Monday, February 17

8 a.m.—Registration

10 a.m.—Aggregate Division Meetings.
- Celocrete—Room 114; presiding, Austin Crabbs, Davenport, Ia.
- Cinder—Bal Tabarin; presiding, Philip Paolella, Hamden, Conn.
- Haydite—Room 111; presiding, W. R. Stanley, Kansas City, Mo.
- Pumice—Room 102; presiding, A. G. Streblow, Napa, Calif.
- Superock—Room 104; presiding, J. S. Bailey, Atlanta, Ga.
- Waylite—Grey Room; presiding, H. E. Buchholz, Chicago.

1 p.m.—Concrete Industries Exposition opens in Exhibit Hall. (The exposition will be open on Monday, Tuesday and Wednesday from 1 p.m. to 8 p.m.; on Thursday from 10 a.m. to 3 p.m.)

3 p.m.—Natural Aggregate Division—Bal Tabarin; presiding, C. E. Swanson, Kansas City, Mo.

Tuesday, February 18

8 a.m.—Registration

10 a.m.—Convention opens — Grand Ballroom; presiding, D. R. Lynde, president.
- President's address
- Report of treasurer
- Report of executive secretary
- Report of publications committee
- Report of nominating committee
- Election of five new directors
- Address, "The Apprentice Training Program—Its Relation to Increasing the Supply of Bricklayers," M. M. Hanson, assistant director, Apprentice Training Service, Department of Labor, Washington, D. C.
- Panel discussion led by Philip Paolella, Hamden, Conn., John L. Strandberg, Kansas City, Mo., and Sam Paturzo, Baltimore, Md.
- Address, "Labor Relations in the Plant," Joseph A. Wilder of Wilder, Van Slyke & Associates, Industrial and Labor Relations Consultants, Chicago, Ill.

1 p.m.—Concrete Industries Exposition opens.

Wednesday, February 19

8 a.m.—Registration

10 a.m.—Technical Session — Grand Ballroom; presiding, R. E. Copeland, director of engineering. (Open only to regular, associate and contributing members, exhibitors and invited guests.)
- Address, "The N.C.M.A. Technical Program," R. E. Copeland.
- Report of technical problems committee, Jay C. Ehle, chairman, Cleveland, O.
- Reports of subcommittee chairmen: Paul M. Woodworth, Chicago; Hugo Filippi, Chicago; Richard Carpenter, Buffalo, N. Y.; Herbert Geist, Cleveland, O.
- Address, "Reinforced Concrete Masonry—Its Merits and Applications," C. D. Wailes Jr., Wailes-Bageman Company, Los Angeles, Calif.
- Address, "Prefabricated Floors of Concrete Masonry Units," O. Neil Olson, head of department of civil engineering, Marquette University
- Symposium on plant problems
  - "Maintenance and Repair of Block Machines," Horace Bush, Multiplex Concrete Company
  - Discussion by L. E. Schwalbe, Economy Block Company, Wauwatosa, Wis., and R. A. Utiger, Cinder Concrete Products, Inc., Denver, Colo.
  - "Hard Facing Welding in Maintaining Plant Equipment," Ralph Reiner, Cleveland Builders Supply Company
  - "Operation and Maintenance of Steam Boilers," A. A. Haltug, The Hurlbut Company, Green Bay, Wis.
  - "Production Cost Accounting and Control," P. M. Clement, Katterjohn Concrete Products, Paducah, Ky.

1 p.m.—Exposition opens.

Thursday, February 20

8 p.m.—Registration (to 3 p.m.)

10 a.m. to 3 p.m.—Exposition.

10 a.m.—Merchandising Session—Grand Ballroom; presiding, E. W. Dienhart, executive secretary
- Address, "Farm Business and How to Get It," W. G. Kaiser, manager of farm bureau, Portland Cement Association, Chicago. (Mr. Kaiser will show a new motion picture with sound, detailing opportunities in the farm market.)
- Address, "A House Plan Service as an Aid in the Promotion of Concrete Masonry Houses," C. A. Sirrine of Loree-Sirrine, Architects, Ann Arbor, Mich.
- Address, "A Buyers Market Is in Prospect — Merchandising Is Again in Order," James M. Cleary, Roche, Williams & Cleary, Advertising Counsellors, Chicago. (A feature of Mr. Cleary's presentation will be the broadcast of a typical complete radio program used by Chase Building Products, Fort Worth and Dallas, Tex.)
- Address, "A Scotsman Looks at Modular Co-ordination," A. Gordon Lorimer, Producers' Council, Washington, D. C. (Mr. Lorimer will illustrate his address with slides and charts which are used before meetings of architects and related groups to present the story of modular co-ordination.)

2:30 p.m.—Inspection trip to the Illinois Brick Company's new plant in southwest Chicago. Refreshments will be served. Buses will leave LaSalle Street entrance of Hotel Sherman at 2:30. Bus tickets must be purchased at registration desk in advance. Price, $2.50 round trip.

Southern Illinois Plants Form Concrete Products Assn.

Plans for the organization of the Southern Illinois Concrete Products Manufacturers and Dealers Association were completed at Carmi in October. The following officers were chosen: J. O. Hall, Harrisburg, president; L. E. Holmes, Marion, vice-president; Robert B. Eadie, Carmi, secretary; R. E. Gordon, Sesser, treasurer.

President Hall stated that the purpose of the association is to promote better products and better service. The group represents concrete plants from Mount Vernon south to Cairo. Affiliation with the National Concrete Masonry Association is contemplated.

Big Des Moines Concrete Firm Purchased by J. C. White

The Keefner Concrete and Lumber Company of Des Moines, Ia., has been sold to J. C. White, head of the White Construction Company of Des Moines. The ready-mixed concrete plant, which is located at the south end of the Seventh Street viaduct, is said to be one of the most modern in the United States. It produces both pre-mixed and transit-mixed concrete for all types of construction work. Special mixing trucks deliver the product directly to the job. The plant has a capacity of one cubic yard of concrete per minute; its 12 mixing trucks have capacities ranging from 3 to 5 cubic yards each.

The ready-mixed business was established by Mr. Keefner in 1923 and was one of the first plants of its kind in the Midwest. He had launched the building materials department of the company in 1908 under the name of the Des Moines Building Material Company.

J. C. White, the new owner of the business, has announced that the entire present personnel of the plant is being retained. Grover Beiter has been named general manager. Mr. Keefner is planning to develop new sand and gravel interests on his 50-acre tract near Des Moines.

Are you contemplating the production of ready-mixed concrete — concrete blocks — concrete pipe? Separate chapters on each in the Pit and Quarry Handbook give you the latest and most complete information.

Owner of Tucson Concrete Products Firm Acquires Dallas, Tex., Concern

C. J. Wilkerson, owner of the Concrete Products Company, Tucson, Ariz., has purchased the Brown and Browne Building Products Company at Irving, Tex., a suburb of Dallas.

The property consists of a manufacturing building and a cement storage room, which is located, along with an office building, on a three-acre tract. Concrete aprons have beeen laid in preparation for the erection of steam-curing rooms which will be completed by the new owner.

Equipment consists of a Stearns stripper, a Stearns mixer, pallets and other units. A bin and a batcher, with scales for handling the aggregate, have been purchased; and installation will begin at once. S. P. Lowery, who was formerly shop foreman in the Tucson plant, will be superintendent at Irving.

Mr. Wilkerson is negotiating for the purchase of additional plants in this area of Texas.

Corbetta Construction Co. Opens Office in Chicago

The Corbetta Construction Company, Inc., of New York City, has recently opened a Chicago office at 208 South LaSalle Street. Harold W. Murray, vice-president, is in charge.

Corbetta last year acquired from the Price Brothers of Dayton, O., the ownership of patent rights to Flexicore reinforced concrete floor and roofing slabs. Manufacturing rights are also leased to other concerns, both in the United States and in foreign countries.

Three Products Plants In Utah Get New Equipment

Two plants of the Mortarless Block & Tile Company of Ogden, Utah—the Rigid Block & Tile Company at Provo, Utah, and the Vernal Block & Tile Company at Vernal, Utah—have been equipped with hydraulic power machines from the Mortarless Tile Machine Company, Inc., of Los Angeles.

Two of the same machines have been in operation for several months at the Ogden plant; Rigid and Vernal, only recently established, are to have two each.

Grand Rapids Firm Erects $75,000 Concrete Block Plant

A new business enterprise at Grand Rapids, Mich., was recently put into operation upon the completion of the $75,000 block plant of the Kent Block Company. Henry Everse and Fred S. Cook are the co-owners of the firm.

Construction of the building was begun in October, 1945, and finished in the spring of 1946. Production of concrete masonry block could not be started, however, until the arrival of the necessary equipment and machinery.

Protracted Strike Ends With Signing of Agreement

Terminating a strike of more than four months' duration, 40 employees of the Utah-Idaho Concrete Pipe Company's plant at Nampa, Ida., returned to work after the signing of an agreement providing wage increases and a closed union shop. Wage increases were announced as amounting to approximately 12½ percent.

The strike started last May 25, at which time the firm was known as the Idaho Concrete Pipe Company. The concern had been working most of the time the strike was in effect, through hiring non-union crews, with operations varying between part- and full-time output. Fred H. McCabe of Boise, business manager of the Building and Construction Trades Council, said the agreement came after union contractors and construction outfits had boycotted the concern's products.

John F. Laurenzi, who retired last year as warehouse superintendent of the Fischer Lime & Cement Company of Memphis, Tenn., died on November 17, 1946, at his home in that city at the age of 54. He had been employed by the Fischer company for 25 years.

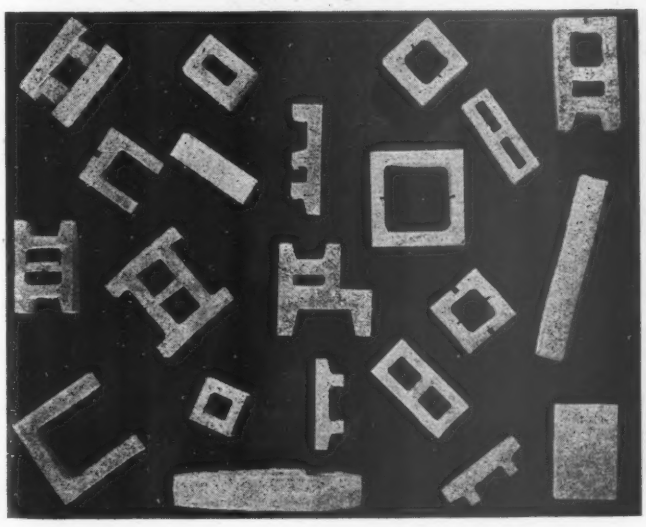
Hollostone Co. to Boost Output by Installing Improved Equipment

The Hollostone Company, Inc., North Hollywood, Calif., for 20 years one of the leading producers of concrete blocks in the Los Angeles area, is planning a number of important improvements at its plant.

According to J. A. Allen, general manager, these will include the installation of a battery of 10 improved model Hollostone Blockmaster machines for molding the units, additional mixing facilities, and a complete new Noble all-steel weigh-batching plant, complete with overhead aggregate bins and bulk-cement silos. When completed, the plant will have the capacity to enable it to turn out sufficient units in a 24-hr. day to build 30 small houses. A carefully coordinated sales promotion and advertising campaign is being undertaken to increase the demand for its product.

Hollostone blocks are of the open end type and were developed by the late M. L. White, founder and former head of the company, who also designed and built the first Hollostone machine. Improvements pointed principally toward simplification and stepped-up output have been made recently; and the company has announced that it is prepared to make shipment of this equipment to prospective entrants into the concrete-products industry, as well as for replacement in established plants.

The Hollostone Blockmaster machine is designed specifically to produce the "California size" units, which are 4 inches high and which have proved so popular among California builders because of their pleasing appearance in the wall.



• Left: Some of the 60 types of block made by the Hollostone Company of North Hollywood, Calif. These samples indicate the wide variety of shapes that can be produced on the Blockmaster. The mold bottoms may be set to make tile any height within the limit of the mold depth, thus multiplying the variety obtainable at no extra cost.

• Right: The mold has already been vibrated to compact the aggregate and then rotated; it is ready to be released to the moving conveyor belt.

GELBMAN'S NEW INVERTED T CONCRETE JOIST FORMS ITS OWN CEILING

another P&Q exclusive

LOUIS GELBMAN, president of Concrete Units, Inc., Bronx, N. Y., is the holder of many patents on block machines, handling equipment, light-weight aggregates, etc. His latest invention, however, is a floor joist which forms its own ceiling and to which a wood floor can be nailed. The joist in place is in the form of an inverted T. It is at present being made in only one size, 16 in. wide and 8 in. deep, and in lengths up to 16 feet, for residential construction. Later a heavier joist of longer span may be made.

The joists are poured inverted in T-shaped molds of which there are 100 permanently located in a row. These molds are supported at each end and in the middle by parallel concrete block walls. At the time of our visit no cold-weather pouring had been done, but a blower or a steam coil heater can be placed in the two tunnels under the molds and their ends closed up as desired. A tarpaulin over the molds affords additional protection.

• Scene at the Gelbman plant in the Bronx, showing a gang of molds in which the joists are poured inverted.

The T-shaped reinforcing used is a composite. The first item used in its assembly is a 1⅝-in. square wood strip of the length of the beam to be made. Through this strip are driven 7/16- by 6-in. nails at 12-in. intervals. The ends of these nails are then welded to a ¾-in. reinforcing rod. This forms the vertical part of the T. This rod is then clipped to ¼-in. cross rods between two ⅜-in. parallel reinforcing rods, this assembly forming the horizontal part of the T.

This T-shaped frame is then inverted and placed in the mold with the wood strip at the bottom, and automatically centers itself. The ends of the molds are channel irons which are wedged in place when pouring and removed when the joist is cured. Spacers are used when less than 16-ft. lengths are desired.

The concrete is brought in truck mixers from a neighboring plant, and the 100 molds are poured continuously in 4 hours or less. The placing of the concrete is facilitated by means of Electric Tamper &

(*Continued on page* 135)

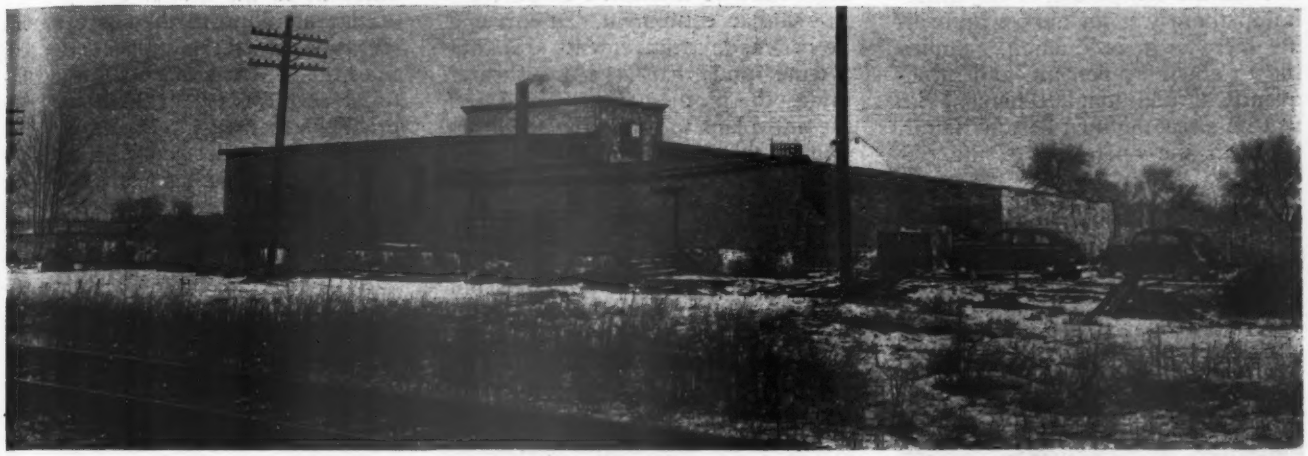
• Left: A closeup of molds, showing reinforcing in place.

• Below, left: One of the T-shaped reinforcing units.

• Right: Gelbman joists in storage, ready for shipment.

Illinois Block Producer Perfects Labor-Saving Offbearer

By WILLIAM M. AVERY



another ON THE SPOT report

THE J. N. Cole Concrete Products Company, of Crystal Lake, Ill., a relatively new concern which started operations in May, 1946, has already made an interesting contribution to the block manufacturing technique. Like most small concerns in the products business, this company's equipment set-up originally involved off-bearing the units by hand from the block machine to the curing racks. In spite of paying as high as $1.25 per hour for offbearers, the company found it virtually impossible to hold men at this work for more than a month, and at times the turnover was even more rapid. Apart from the nuisance of finding and breaking in new men, the situation inevitably had an adverse effect, both quantitatively and qualitatively, on production.

• A general view of the J. N. Cole Concrete Products Company, Crystal Lake, Ill. The plant went into operation in May, 1946, and is currently producing 1,000 standard 8-in. units per day.

Curious to learn at first hand why the job was so universally regarded as poison, J. N. Cole, owner of the business, took over the offbearing job himself for a period of several weeks. It was a thoroughly rough session, he admits, particularly from about 2 o'clock to the end of each day, when the effects of cumulative fatigue seemed to double the weight of the blocks, and to make it almost impossible to set the units down gently.

One solution to the problem, of course, would have been to install a pneumatic offbearer of the type now widely used in block plants which operate 2- and 3-unit molding machines. The Cole machine, however, makes a single unit in each cycle of operation, and the outlay of capital for a pneumatic offbearer seemed out of proportion to the work to be done. Mr. Cole began experimenting with a simple, counterweighted offbearer suspended from an overhead track, and in an astonishingly short time he had two working models of the rig operating in his plant.

• A view showing the arrangement of the two offbearers with respect to the block machine.

As the accompanying illustrations show, the cord from which the offbearer is suspended is dead-ended at one end of a short monorail trolley which is free to run back and forth on an 8-foot length of tubular track. Two small sheaves, one attached to a 30-lb. counterweight and the other to the opposite end of the trolley bar, complete the top assembly. The actual lifting is done with two short lengths of angle iron attached to vertical hanger rods. These are suspended from a steel cross member supported at midpoint by a hook attached to the end of the cord (see cut).

Two offbearer assemblies are used, with the tracks set at right angles, in order to avoid delays on the block

machine while loaded racks are removed and replaced. The racks are centered beneath the tracks so that in any position of the offbearer the drop cord is only a few degrees out of vertical.

With the completion of the installation there was an almost immediate increase in production, amounting to about 10 percent, and subsequently an additional 10 percent rise was noted as the men became familiar with the operation of the off-

• J. N. Cole, owner of the company, demonstrates the ease with which a 45-lb. unit can be held with the offbearer.

bearers. With the complete elimination of heavy lifting, the problem of fatigue in the late hours of the day was no longer serious enough to affect either the quantity or the quality of output. There was considerably less breakage of freshly-molded units, and fewer blocks were marred by rubbing against the men's clothes as they carried them from the machine to the rack. While these gains were secondary to the main objective of reducing fatigue, they indicated pretty plainly that the offbearers were performing the task for which they were designed, and some five months of operation without further labor turnover seems to justify this conclusion.

In any case, Mr. Cole is sufficiently pleased with the results obtained in his own plant to feel that other operators may be interested in purchasing similar equipment. To this end he has made arrangements to manufacture and market his offbearer under the trade name "E-Z Lift." He also plans to apply the same design in the development of a portable yardhoist.

The Cole plant is housed in a concrete masonry building which measures 55 by 100 feet. Each pocket of a 3-compartment overhead steel bin holds approximately a carload of aggregate. Both aggregate and cement (in bags) are shipped in by rail, but must be transferred to trucks for the short haul from the siding to the plant. The aggregates are dumped into a hopper from which they are fed to the bins by means of an 18-in. by 24-ft. inclined belt conveyor. Both heavy- and lightweight aggregates are used.

The rehandling problem with respect to cement has been materially simplified by the use of special wooden pallets, measuring 30 inches in width by 5 feet in length, on which 400 bags of cement can be stacked. The pallets are laid out on a flatbed truck and the bags are stacked directly from the railway car. At the plant the loaded pallets are removed from the truck with a Clark high-lift fork truck and stacked, 4 to 5 pallets high, in a corner of the building. Loaded pallets are subsequently spotted, one at a time as required, adjacent to the mixer. One feature of this handling method is the conservation of storage space effected, since the lift truck can stack the material about twice as high as it is practical to attempt by hand. The deck of the pallets consists of 2 by 10's cleated together with 2-by-4's; these are in turn fastened to three 2-by-6's between which the forks of the lift truck slide.

A 20-cu.-ft. volume batcher, suspended from an overhead monorail, is used to convey aggregates from the bins to a 12-cu.-ft. Blatt mixer which is set at floor level. The mixer discharges onto an 18-in. by 12-ft. inclined belt conveyor which feeds a small hopper above the block machine. Production on the standard single-unit Multiplex tamper amounts at present to about 1,000 8-in. equivalents in an 8-hr. day. With additional curing space the company expects in the near future

(*Continued on page* 135)

• Right: A closeup of the tubular track, the monorail trolley, the sheaves and the counterweight, which make up the top assembly of the offbearer.

• Below, left: The 12-cu.-ft. mixer is fed by a volume batcher suspended from an overhead monorail.

• Right: A closeup of the high-lift fork truck which is used for a number of jobs in addition to handling loaded and empty racks.

Labor Requirements in Production and Distribution of Concrete Masonry Units

By ALFRED W. COLLIER AND CLYDE STONE
Bureau of Labor Statistics
U. S. Department of Labor

CONSTRUCTION activity, especially in residential and GI housing, continues at a high rate in spite of material and manpower shortages. Employment at the construction site has increased markedly in the past 12 months. At the same time there has been increased employment in most of the industries producing the building materials used. The present study is the second in the series of labor-requirements studies of the more important building materials, undertaken by the Bureau of Labor Statistics, to determine the indirect labor involved in any construction activity.

From basic plant records it was found that approximately 30.2 man-hours were required at the plant to manufacture 1,000 concrete blocks. In addition to the man-hours necessary for plant manufacture, it was estimated that 38.8 man-hours were needed to extract the raw materials used, to haul these materials to the plant, and to deliver the finished product to the construction site. Similar estimates were made for the production of block in which lightweight and heavyweight aggregates, respectively, were used.

	Man-hours per 1,000 Blocks		
	All Blocks (average)	Lightweight	Heavyweight
Raw materials, production, and transportation*	29.2	23.2	36.6
Manufacturing	30.2	32.4	27.4
Transportation, finished product	9.6	9.2	10.0
Total production and transportation	69.0	64.8	74.0

* Includes purchased electric power.

Significant variations were noted in man-hour requirements when the data were analyzed according to rate of production, the number of molding machines per plant, and type of aggregates used. Plants producing at a monthly rate of less than 50,000 blocks required 74.5 man-hours per 1,000 blocks, while those producing at a rate of 350,000 blocks or more required only 23.1 man-hours for each 1,000 blocks produced. Labor requirements in plant operations varied from 34.3 man-hours, for plants having one molding machine, to 24.9 man-hours, for plants having 3 or more molding machines. The manufacture of lightweight blocks required 32.4 man-hours per 1,000 blocks as compared with 27.4 man-hours necessary for the production of 1,000 heavyweight blocks.

Production and Transportation The principal raw materials used in the production of concrete block are (1) cement and (2) aggregates, which fall into two classifications, lightweight and heavyweight. Cinders, expanded slag, and burned clay and shale are the principal lightweight aggregates, whereas sand and gravel or crushed stone are the most commonly used heavyweight aggregates.

The quantities of raw materials, including electric power, and the man-hour requirements for these materials are shown below, by type of block, for the production of 1,000 blocks.

	Requirements per 1,000 Blocks		
	All Blocks (average)	Lightweight	Heavyweight
Raw materials:			
Cement ..... bbl.	10.9	12.2	9.2
Sand and gravel ..... tons	13.3	.....	30.2
Cinders ..... tons	7.6	13.6	.....
Electric power ..... kw. hr.	56.3	51.2	62.7
Man-hours:			
Cement	10.9	12.2	9.2
Sand and gravel	12.0	.....	27.2
Cinders	6.1	10.8	.....
Electric power	.2	.2	.2
Total	29.2	23.2	36.6

The quantities of cement and electric power shown above for all types of block are average quantities required for all plants (producing either lightweight or heavyweight blocks) included in the survey. Similarly, the quantities of sand and gravel and cinders are weighted averages of heavyweight and lightweight aggregates required for the production of the two types of block. The quantities shown separately for lightweight and heavyweight blocks are those required when production is confined to each respective product.

In 1945-46 the man-hour requirements for the production and transportation of 100 barrels of cement were 100.49, and 3.12 man-hours were required to produce 1,000 kilowatt-hours of electric power.[1] In the manufacture of 1,000 blocks it was determined from these figures that the labor requirements were 10.9 man-hours for the 10.9 barrels of cement used, and 0.2 man-hour was expended in providing the 56.3 kilowatt-hours of electric power consumed.

The production and distribution of sand and gravel, the principal heavyweight aggregates, required an average of 0.9 man-hour in 1937. In the absence of information for the current period, these data were used as a basis for estimating the labor requirements for sand and gravel. It was therefore estimated that 12.0 man-hours were needed for the production and transportation of the 13.3 tons of sand and gravel used in the production of 1,000 blocks. While other heavyweight aggregates, such as crushed stone, untreated blast-furnace slag, etc., are sometimes used, sand and gravel are predominant in use, and are considered as representative of all heavyweight aggregates in this study.

Since cinders are a waste product resulting from the combustion of coal, no man-hours were estimated for the production of this material. The estimate of man-hour requirements for this material include those necessary to transport the cinders to the plant and its preparation at the plant after delivery. The labor requirements for the transportation of cinders are similar to those for sand and gravel. From a previous Bureau of Labor Statistics study, it was found that 0.6 man-hour was necessary to transport 1 ton of sand and gravel in 1939. This figure was used as the labor requirement for the

1. PIT AND QUARRY, December, 1946, pages 89-92.

transportation of 1 ton of cinders. Thus it was estimated that 4.6 man-hours were required to transport 7.6 tons of cinders to the plant. By use of basic plant data it was determined that 1.5 man-hours were needed to prepare the cinders at the plant after delivery, making a total of 6.1 man-hours for transportation and preparation of the 7.6 tons of cinders. Analysis of the data collected in this study shows that cinders were the aggregate used for 67 percent of the total production of lightweight blocks. Since no available data were found for estimating the man-hour requirements for other lightweight aggregates, labor requirements for the transportation and preparation of cinders, based on data collected in this survey, were used as representative of all lightweight aggregates.

The labor requirement estimate for lightweight aggregates appears to be understated in view of the fact that no allowance is made for labor expended in the production of raw cinders. It is not to be imputed that lower man-hour requirements for lightweight aggregates, as compared with total requirements for heavyweight aggregates, are indicative of lower costs for the lightweight block manufacturer. On the contrary, it has been noted in some areas that the cost of raw cinders (due, at least in part, to inadequate local supplies) exceeded the cost of prepared heavyweight aggregates. In addition, the cinder block manufacturer had to bear the cost of extra operations in preparing the raw cinders for use.

Plant Operations The 50 plants in this study represent a monthly rate of production of 8,674,284 lightweight and heavyweight concrete blocks of 8 x 8 x 16 inch equivalent size. Total man-hour requirements for this production and the man-hours per thousand blocks are shown below by plant operation:

	Man-hours Required in Manufacture of Concrete Block, 1946[1]	
	Total	To Produce 1,000 Blocks
Proportioning and mixing	20,876	2.4
Machine molding	46,382	5.3
Hauling	24,872	2.9
Yard	85,958	9.9
Maintenance	21,377	2.5
Superintendents and foremen	17,704	2.0
Miscellaneous Labor	9,114	1.1
Administration	35,761	4.1
Total, plant operations	262,044	30.2

[1] Does not include man-hours required for preparation of aggregates or transportation of finished product.

The first operation is the proportioning and mixing of the aggregates and cement before the units are molded. In modern plants the materials are batched by measuring devices and placed into the concrete mixer.

Many aggregates, such as sand and gravel used for heavyweight block, and Haydite and Waylite for lightweight block, do not need additional preparation. They are delivered to the plant ready for use. Cinders, however, sometimes need preparation at the plant, such as crushing and removing foreign particles (metals, sulphur, etc.). For this reason, the man-hours for aggregate preparation are not shown separately above but are included in the raw materials section of the summary statement.

The key operation in the plant is the machine molding operation. The machine forms the units, vibrates or tamps the concrete mixture, and discharges the formed units onto pallets which are lifted to racks by air hoists. Modern machines are almost fully automatic, so that usually only one worker is necessary to operate air hoists and to tend the machine as it is in production.

After the blocks have been molded on the machine and placed on racks, they are hauled by tractor or by hand to the curing rooms or kilns.

In any plant the largest single group of employes is the yard gang. This group numbered from 3 to 7 employees per plant. As concrete units are bulky and must be moved many times, considerable labor is expended in this operation. The yard employees remove the blocks from the curing rooms, stack them in the yard for stock piles or additional curing, sometimes assist with the loading of the finished blocks for shipment, and perform other unclassified tasks. The labor is generally unskilled and nearly a third of the entire plant employment is engaged in yard operations. For this operation a total of 85,958 man-hours was required, or an average of 9.9 man-hours per 1,000 blocks.

Maintenance includes the labor necessary to make repairs on machinery and plant equipment. During the period surveyed, plants were operating at a high rate of production and a considerable range in the man-hours required for this function was noted between plants having relatively new machinery and those where the machinery was older. This range was from 0.5 man-hour per thousand blocks produced in the newer, modern plants to 11.3 man-hours in the older plants.

Plant supervision functions are performed by superintendents and foremen. Administration includes the executive, clerical, and sales force. Miscellaneous labor includes watchmen, janitors, boilermen, etc.

Transporting Blocks High transportation costs limit the area which can be economically served by the concrete products manufacturer and for this reason plants are widely dispersed. Since they serve relatively small local areas, the shipment of the finished product is usually by motor-truck. Most plants deliver varying proportions of their production and this function may be considered as a plant operation. In many plants surveyed, deliveries were made by trucking companies on a contract basis for all or part of the finished product. In addition, considerable proportions were transported from the plant by the purchaser. For the purpose of establishing a basis for comparison, the data for the transportation of concrete blocks to the construction site were not included in plant operations. From plant records it was found that the delivery of 3,244,000 blocks required 31,000 man-hours and it was estimated that 9.6 man-hours were required for the transportation of 1,000 blocks. The transportation of lightweight blocks required 9.2 man-hours for 1,000 units, whereas 10.0 man-hours were needed for heavyweight blocks.

Among the significant factors in determining the number of man-hours required to produce 1,000 blocks, the monthly rate of production and the number of molding machines in the plants are taken into consideration. Table 1 shows that, in terms of total man-hours, plants producing over 350,000 blocks were nearly 3 times as efficient as those producing less than 50,000 blocks monthly. The greatest variation appeared in the manufacturing process. The 9 plants producing less than 50,000 blocks required 27.8 man-hours per thousand as compared with 7.6 man-hours for the 5 plants which produced in excess of 350,000 blocks during the same period. The next greatest variation (24.1 man-hours compared with 6.7) occurred in the yard operation. Similarly, the

man-hours required for the administrative function varied considerably—from 15.2 man-hours for the small to 3.0 man-hours for the large producers. The least variation was in overhead, with the smallest producers, requiring 7.4 man-hours, and the largest 5.8 man-hours per thousand concrete blocks.

TABLE 1.—Average Number of Man-Hours Required to Produce 1,000 Concrete Blocks, 1946,[1] by Rate of Production

Monthly Rate of Production (8x8x16 Equivalent Units)	Number of Plants	Man-hours per 1,000 Blocks				
		Total	Manufacturing	Yard	Overhead	Administrative
All plants	50	30.2	10.6	9.9	5.6	4.1
Under 50,000 units	9	74.5	27.8	24.1	7.4	15.2
50,000-149,999 units	17	38.0	13.6	12.8	6.0	5.6
150,000-249,999 units	14	30.9	10.9	10.6	5.5	3.9
250,000-349,999 units	5	26.9	9.8	9.5	4.5	3.1
350,000 units and over	5	23.1	7.6	6.7	5.8	3.0

[1] Does not include man-hours required for preparation of aggregates or transportation of finished product

Molding machines.—The most important producing unit in any plant is the molding machine, and the capacity of a plant is based on the number of machines in use. In this study important variations in man-hours were found to exist between plants having one, two, and three or more of these machines. Table 2 shows a breakdown of man-hours required to produce 1,000 blocks for 45 plants, by number of machines. A significant difference in total man-hours required existed in those plants having one machine as compared with plants having three or more machines. As table 2 indicates, the manufacturing operation showed the least variation because of the automatic features of most machines, while the yard and overhead functions showed the greatest variations.

TABLE 2.—Variation in Man-Hours Per 1,000 Blocks, 1946,[1] by Number of Molding Machines

Machines in Use	Number of Plants	Number of Blocks Produced	Man-hours per 1,000 Blocks				
			Total	Manufacturing	Yard	Overhead	Administrative
All plants	45	7,723,000	28.7	10.7	9.5	4.7	3.8
1 molding machine	20	2,025,000	34.3	11.5	11.9	6.2	4.7
2 molding machines	19	3,833,000	27.5	10.3	8.7	4.4	4.1
3 or more molding machines	6	1,862,000	24.9	10.3	8.6	3.5	2.5

[1] Does not include man-hours required for preparation of aggregates or transportation of finished product.

It should be noted that during this period, 6 large plants, each with 3 or more machines, produced almost as many units as 20 with 1 machine.

Concrete blocks are divided by the industry into two major classifications—lightweight and heavyweight. A lightweight block on the average will weigh about 30 pounds, while a heavyweight block will weigh approximately 40 pounds for the same size—8 x 8 x 16 inches. The range is from 27 to 33 pounds per block for the lightweight, and from 38 to 44 pounds for the heavyweight.

In general, lightweight blocks are used for "backup" with other facing material, for partitions and general interior construction, while heavyweight blocks are used for foundations and load-bearing walls. However, even for exterior use, lightweight blocks are gaining popularity.

Table 3 shows the average number of man-hours required to produce 1,000 blocks by the two types of aggregates used. In general, 5 more man-hours per thousand blocks were required to produce lightweight block than heavyweight block. Many plants produced both types of blocks and it was necessary to obtain man-hour data for each types of blocks and it was necessary

From information gained in the field, it has been determined that lightweight blocks require more care in manufacturing and handling.

TABLE 3.—Average Number of Man-Hours Required to Produce 1,000 Concrete Blocks, 1943[1] by Type of Aggregates Used

Types of Aggregates Used	Number of Plants	Man-hours per 1,000 Blocks				
		Total	Manufacturing	Yard	Overhead	Administrative
All types	50	30.2	10.6	9.9	5.6	4.1
Lightweight	31	32.4	11.2	10.1	6.8	4.3
Heavyweight	32	27.4	10.0	9.6	3.9	3.9

[1] Does not include man-hours required for preparation of aggregates or transportation of finished product

Gelbman's T Joist

(*From page* 130)

Equipment Co. screed-type electric vibrators. Curing is done overnight as high-early-strength cement is used.

On the job the joists are laid parallel and their beveled joints are mortared. Then the single or double wood floor is nailed down on the wood strips and the ceiling is plastered or painted. Paint is recommended as the joints make a pleasing architectural effect.

The joists being made at present are designed for a 40-lb. live load and a safety factor of 4. On 3-point loading they have carried a load of 174 lb. per sq. ft. without damage.

Illinois Block Producer

(*From page* 132)

to increase output to about 1,500 units per day. Also in prospect at an early date is the construction of four 14- by 60-ft. curing rooms which will have a capacity of about 1,800 units each. This latter development will anticipate the installation of a second block machine.

Increased manpower efficiency resulting from the use of the "E-Z Lift" offbearer and other improvements have reduced the labor force at the Cole plant to three men, compared with six employed during the summer of 1946. This reduction has been accompanied by a slight drop in production (about 10 percent), but the overall economy has amounted to about $25 per day. From an initial output of about 180 units per man per day, plant performance has improved steadily until today the figure stands at 330 units per man per day. While the lower figure is admittedly poor, it is by no means unique in an industry which has been notably slow in adopting efficient methods.

In a large measure the increased labor efficiency resulted from more efficient handling of empty racks and pallets. At the outset the units were stripped on a loading dock adjacent to the plant building, the pallets thrown back on the empty racks, and the racks returned to the block machine where the pallets were unloaded and stacked. Ultimately, to avoid congestion in the molding area, the empty racks had to be returned to the drying room to await a time when they were actually required at the block machine to receive freshly-molded units.

Obviously a considerable number of man hours were frittered away

(*Continued on page* 138)

Indiana Products Business Set Up to Outlast Building Boom

By WILLIAM M. AVERY

another ON THE SPOT report

ONE of the most interesting (and to some observers, one of the most disturbing) phenomena in the concrete products industry today is the vast number of new plants which are springing up in all sections of the country in a patent effort to capitalize on the post-war home construction boom. Many of these plants are obviously being built for a short haul, with the clear intention of liquidating them as soon as the joy ride is over. But an encouraging proportion of them represent a serious effort to establish permanent, financially-sound businesses in localities where block-making facilities are either lacking altogether or are plainly inadequate to satisfy normal demands.

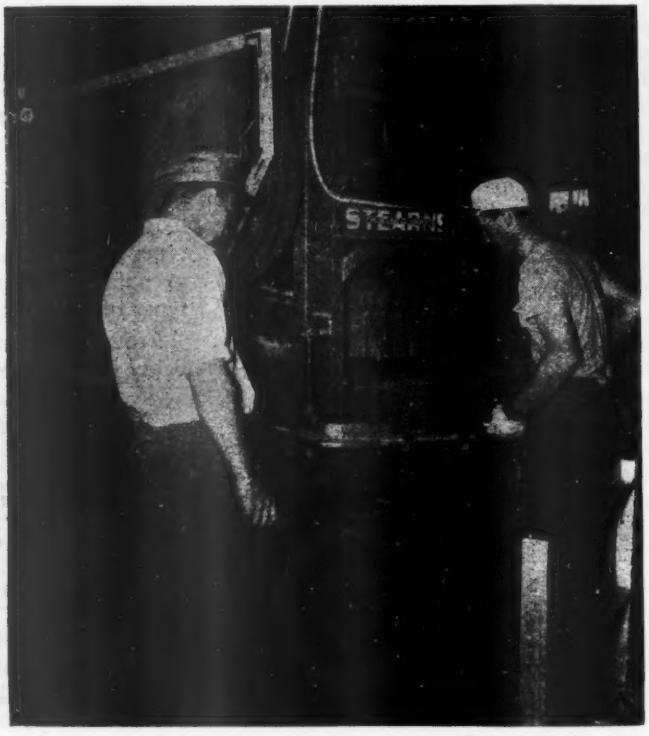
Definitely in the second category is the plant of the Auburn Concrete Products Company at Auburn, Indiana, owned and operated by a partnership consisting of George H. Simanton and A. L. Hooker. Auburn, a community with a population of around 7,000, is the center of a prosperous farming area, and can well support a small, efficient block plant. A small hand-operated plant, with a production of around 200 units per day, has been in operation for a number of years, but local demands until this year have been chiefly supplied by plants located in Fort Wayne, some 30 miles distant from Auburn.

General view of Auburn Concrete Products Company's plant at Auburn, Indiana, which started production in March of this year.

The new plant went into operation in March of this year, despite the fact that curing rooms, yard runways and raw-material storage and batching facilities had not been completed. The present building is 24 by 52 feet, but additions which will be built as soon as material can be obtained will bring the total under-roof area to around 2,800 square feet. When the additions have been completed it will be possible to accommodate two carloads of cement and some 40 cubic yards of aggregate (enough for 2 days operations) within the plant building. Since aggregate can be delivered in about 15 minutes from a near-by pit, only a small stockpile will be maintained on the plant yard.

The block-making unit is a Model A Stearns all-power Clipper stripper, arranged in a standard installation with a 12 cubic-foot Stearns mixer and a skip hoist. At present the 5 to 1 mix is being volume batched in wheelbarrows, but over-

(*Continued on page* 138)



Left: Skip hoist discharging into hopper which feeds block machine. Right: Approximately 1,600 units per day are turned out by a 4-man crew.

PRODUCTION LINE METHODS SPEEDS MONEY MAKING MACHINES TO YOU

Put a Graveley to work today. One Better Built machine, 2 or 3 cells, makes eight sizes of blocks. 2 Graveley machines operating from a single mixer and conveyor will produce well over 3,200 blocks a day.

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BOB GRAVELEY INDUSTRIES, INC.

ORLANDO, FLORIDA

Illinois Block Producer

(*From page* 135)

on all this trucking back and forth, and inevitably some delays took place at the block machine when a hitch occurred in the movement of traffic. When it was finally worked out, the solution proved to be quite simple. Now a pallet rack is kept on the loading dock at all times. Empty racks are shunted directly back into the curing room, while the pallets are stacked up on the special rack. When 400 pallets have accumulated on the rack, they are moved into the molding room by the lift truck and spotted in a convenient location for reuse. Instead of running at breakneck speed throughout most of the day, the lift truck is now idle a considerable portion of the time, and the operator is available to assist at other jobs in the plant.

With the adaptation of the "E-Z Lift" offbearer for yard operation, Mr. Cole anticipates being able to strip and stack as many as 1,000 units in half a day with one man. He has demonstrated, if demonstration were needed, that an active and critical mind can accomplish a great deal toward eliminating some of the inefficiencies which still abound in block plant operations. He disclaims most of the credit, however, by pointing out that the men in the plant have been chiefly responsible by virtue of their complete willingness to tackle new approaches and their determination to make them work.

Indiana Products Business

(*From page* 136)

head bins and weigh batchers will soon be installed. From the first day the plant was operated production has never fallen below 1,000 8-by 8-by 16-inch equivalents per 9-hour day, and the present average rate is between 1,500 and 1,600 units. As the crew gains experience and team work is established, there is little doubt that output will reach the 2,000 unit pace at which the equipment is rated.

On a yield of 22½ to 23 blocks per sack of cement, the company's blocks are testing around 1,200 pounds per square inch at 28 days without special curing of any sort. The owners are so impressed with these results that there is a distinct possibility of their abandoning plans to build steam curing rooms. The planned addition will provide sufficient space for the storage of an entire day's production under roof, and they feel that water spraying and air drying may be as far as they need go to cure their output.

The freshly molded blocks are

Loaded racks are handled with a jack lift-truck. Note 3-high stacking which company found considerably lessened operator fatigue.

loaded by hand into steel racks which hold 48 units each. The racks permit stacking only 3 units high, the company having determined by experiment that 4-high stacking by hand (i.e. without a power offbearer of some type) demanded too much physical effort. The loaded racks are handled with a Barrett-Cravens jack lift-truck.

So far the company has been using sand and pea gravel for its entire output, although one carload of Celocrete expanded slag was received recently from the South Chicago works of the Republic Steel Corporation. (See PIT AND QUARRY, August, 1945, Page 75.) When regular shipments of expanded slag are assured, the company plans to divide its production between lightweight and heavy-weight masonry units.

Of some 100,000 units produced so far by this new plant, at least 90 per cent. have been delivered within a 15-mile radius. Although no effort has been made to promote the rural market, one of the best outlets has been in the farm construction field. Before the plant had produced a single block, approximately 60,000 units had been sold. The company will make its own deliveries as soon as it receives the flat-bed truck ordered some months ago.

As soon as the block plant facilities have been completed and are operating efficiently, the owners plan to branch out into a broad line of miscellaneous concrete products. Among these will be included a precast-concrete splash block for insertion under downspouts to carry rain water away from building foundations.

Michigan Concrete Products Firm Uses New Process

Hastings, Mich., has a new industry which its owners believe has a good future. Outdoor Concrete Enterprise, Inc., a firm which turns out Currier outdoor barbecue fireplaces, incinerators and combination incinerator-barbecue fireplaces. The business was moved recently to a plant near Hastings from Springfield, O., by Henry N. Williams, who has a franchise in all of Michigan and in northern Ohio to make and sell the products. Mr. Williams expects his plant to be in full production early this year.

The Currier products are composed of prefabricated concrete slabs faced on one side with a mica composition called "Micalining," a patented process which "prevents the concrete slabs from cracking under intense heat." The standard fireplace contains a seven-pound cast-aluminum griddle and a fire bed with three elevations. The incinerator is equipped with a patented "smokeproof" door.

Striking Concrete Workers Seek and Receive Wage Hike

In St. Louis, Mo., about 70 employees of seven ready-mixed concrete firms returned to their work on January 17 after a walkout lasting nearly two weeks. The men had gone on strike over wage demands and resumed their work after they had been granted the $1.27½ hourly scale sought by their local unions.

In addition to the striking workers, about 150 other employees of the concrete firms had been made idle and work on important construction projects was delayed.

Nebraska Concrete Tile Maker To Construct Plant on Guam

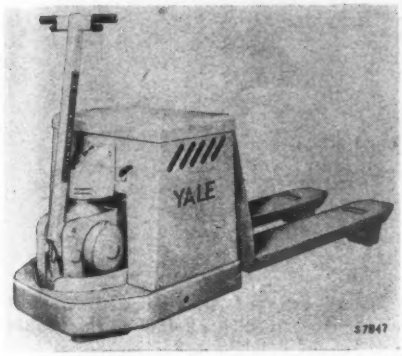
George Lillie, proprietor of the Platte Valley Cement Tile Company, Scottsbluff, Neb., was notified recently that he had been selected to build a tile plant and install machinery for the Peter Kiewit Construction Company and the Morrison-Knudson Construction Company on the island of Guam. Mr. Lillie left by plane the latter part of January.

The plant on Guam will be used by the two American firms for the manufacture of concrete tile in the construction of a permanent U. S. Army base.

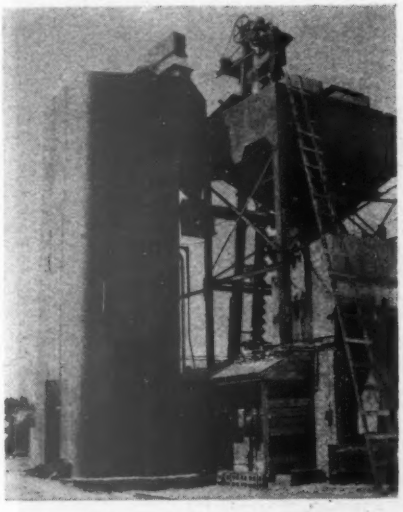
At Selma, Calif., two World War II veterans, William A. Grindle and Clifford W. Tinker, have established a new business, the San Joaquin Haydite Concrete Products Company. At present the weekly capacity of the plant is equivalent to enough units to build nine average-size homes; and it is possible, say the owners, to double that output if demand warrants it.

New Machinery Review—1946

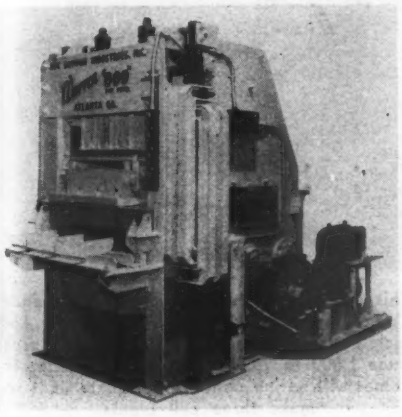
The "Dumpcrete," a recently developed tool for transporting air-entrained concrete from a central mixing plant to the job site, has been announced by the Maxon Construction Co., 131 N. Ludlow Street, Dayton 2, O. The Dumpcrete is a specially designed truck body for hauling concrete without agitation, and for placing the concrete at the job. It is made of all-welded alloy steel, with rounded corners, deflector plates, and inverted center keel and an adjustable baffle, all of which make for clean discharge. A specially arranged hoisting mechanism provides a dumping angle of 90 degrees. The height of discharge is 6 feet, 3 inches for the 4-cu.-yd. size, and 4 feet, 9 inches for the 2-cu.-yd. size. (May, 1946)



The Yale & Towne Manufacturing Co. of Philadelphia line of materials—handling machinery has been augmented by the addition of the "Worksaver," an electric lift truck, which is available in two sizes. The platform model is designed to handle single unit loads, or skid loads, up to 6,000 pounds. The pallet model is intended to accommodate multi-unit palletized loads of up to 4,000 pounds. (January, 1946)

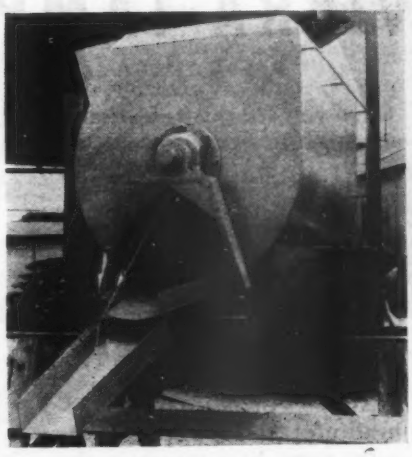


Manually operated or fully automatic batching plants are available to concrete products manufacturers from the Noble Company, 1860 7th Street, Oakland, Calif. The Model CA-60 batching plant includes a 60-ton two, three or four-compartment aggregate bin, and a 250-barrel cement silo, which is mounted at ground level. The weighing batcher is of 1-cu.-yd. capacity. (September, 1946)

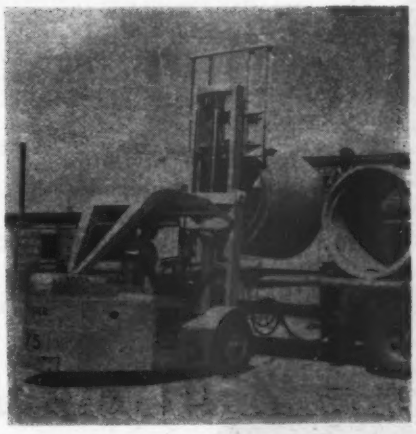


Pictured at the left is the "Warren 800," a new concrete block machine that will produce 800 or more standard blocks an hour. A product of Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta, Ga., it is a machine that has been designed for the big operator. It requires the services of only one man at the front of the machine for off-bearing. (November, 1946)

The "Speed Merchant," a truck mixer with a sealed top loading drum, is offered by the Jaeger Machine Co., 930 Dublin Avenue, Columbus, Ohio. This model is recommended for handling wet-mix concrete, but it can be used in other types of ready-mix plants. Top loading is said to facilitate taking a full batch of material in one drop, and to insure the proper distribution of the various materials. (January, 1946)



Pictured above is one of the new L & W open-top mixers being produced for the ready-mixed concrete industry by the San Jose Well & Pump Co., San Jose, Calif. The mixer shaft is driven by a power take-off from the truck. End discharge and chute are shown in the foreground. The unit has a capacity of three cubic yards of concrete.



A forked lift truck of 7500-pound capacity has been put on the market by the Hyster Co. of Portland, Ore. This model, the "Hyster 75," is a three wheel unit employing a telescoping hydraulic mechanism that will permit a maximum lift of ten feet. The truck as a 40-hp. engine and single rear-wheel, trunnion-type steering. (March, 1946)

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VIBRA-TAMP

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Simply "PUSH A BUTTON" to start an automatic cycle.

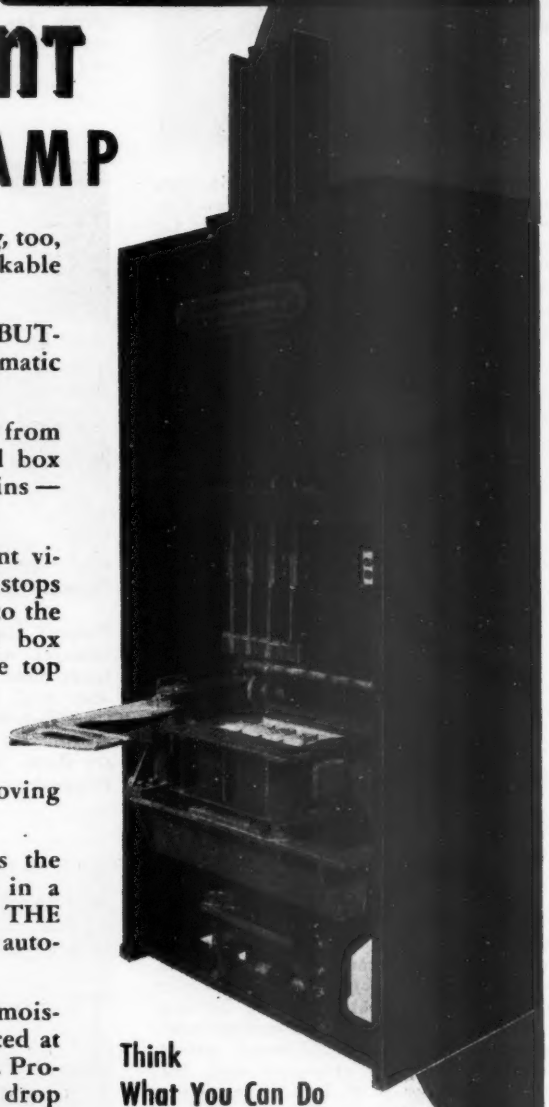
Aggregate is carried from the hopper to the mold box evenly — vibration begins — tamping starts.

At the correct moment vibration ceases—tamping stops —the tamp bars return to the idle position—the feed box recedes, striking off the top of the block.

The block is stripped —the off-bearer swings under the pallet—all moving parts stop.

The attendant swings the off-bearer away—drops in a pallet — and PUSHES THE BUTTON to start a new automatic cycle.

Dense blocks, of any moisture content, are produced at up to 300 per hour. Production mounts—costs drop with a new minimum of and physical effort.



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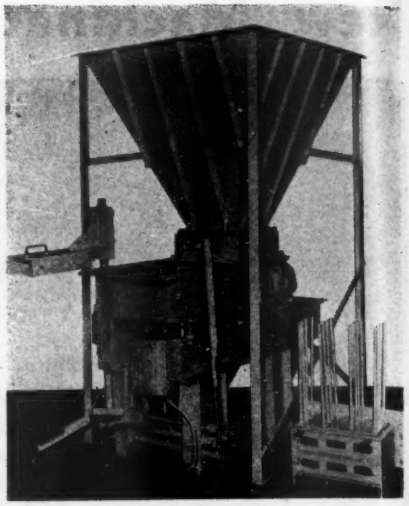
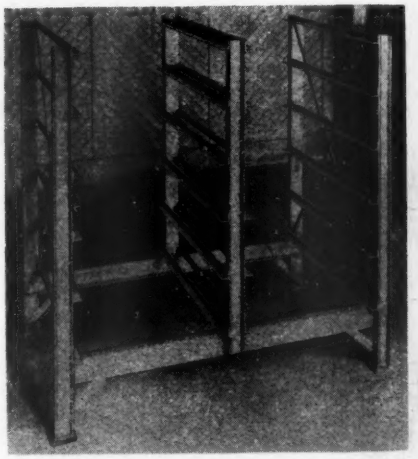
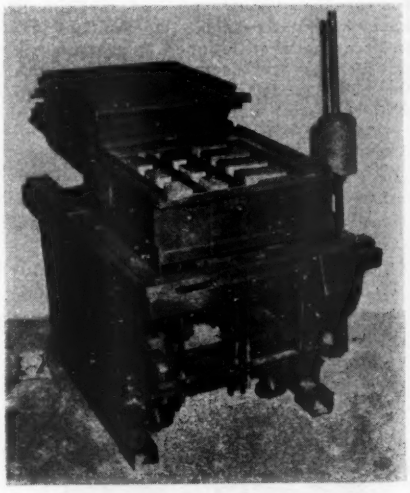


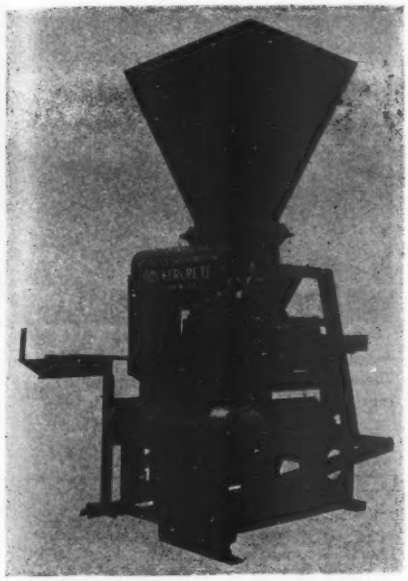
The new concrete block machine and steel hopper illustrated above are products of Fabricating and Machinery, Inc., 3226 Fifth Ave. S., Birmingham 5, Ala. (June, 1946)



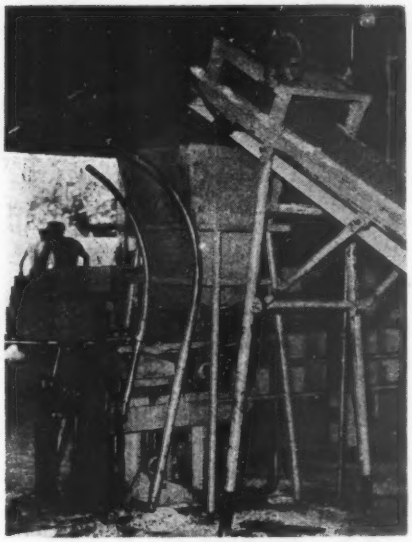
A special type of rack designed to resist corrosion by steam is offered by the Moffat Steel Co. of Bethlehem, Pa., makers of concrete block-handling equipment. The rack is made of high-strength copper-bearing Otis-coloy. (Aug., 1946)



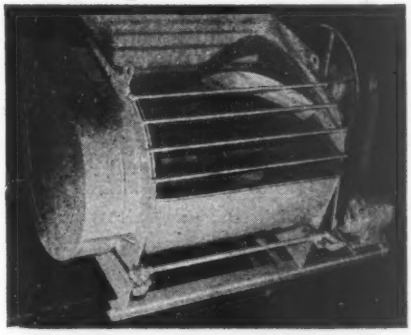
This double unit block machine, the Edgar "Vibra-Shaker," makes two 8- by 8- by 16-inch blocks in one operation and will produce 1,800 to 2,000 units in eight hours. It comes with either concave or square ends to make three cell blocks.



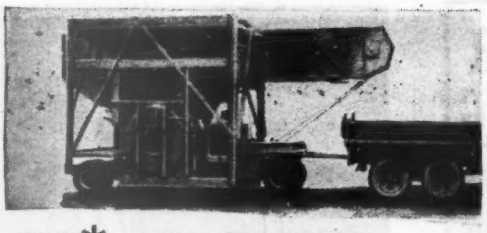
Roy Darden Industries, Inc., of Atlanta, Ga., has announced a new vibrating concrete block machine called the "Rockercrete." This machine has a rugged frame, employs replaceable cores and liners and an eccentric type vibrator. (July, 1946)



The F. C. George Machine Co., of Orlando, Fla., has recently introduced its "George Super V" block machine, equipped with accessories to enable the machine to produce blocks of all sizes. (June, 1946)



The Power Construction Company, Sarasota, Florida, manufactures this heavy-duty concrete mixer, equipped with two spiral blades, hardened liners and precision roller bearings. (Jan., 1946)



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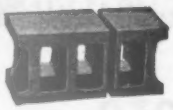
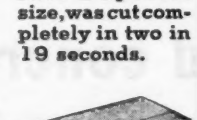
The new Clipper Multiple Cutting Principle makes possible faster cutting of every masonry material regardless of hardness.

Here are a few typical examples of the speed and accuracy with which concrete products and fire brick can be cut.



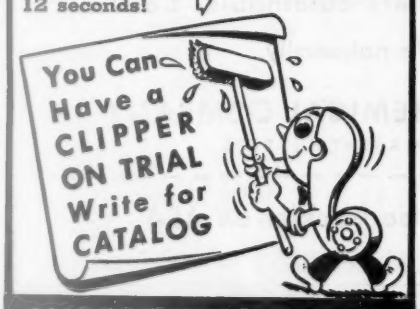
This concrete block, converted into a special size, was cut completely in two in 19 seconds.

One of the many intricate cuts performed on first quality clay brick for heat treating furnaces, —made in 8 sec.



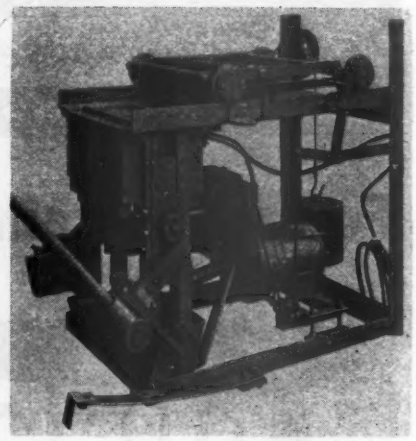
Rotary Kiln Blocks, cut to size for "key" bricks in rotary kilns, require only 10 sec. for completion of cut.

Basic refractories for steel furnaces or cement kilns must be accurately installed. This magnesite brick was cut in 12 seconds!

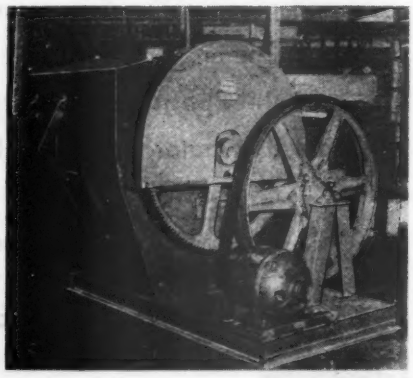


CLIPPER MFG. COMPANY
2801 Warwick, Kansas City 8, Mo.

The "Vibra-Crete," shown above, manufactured by the Allied Welding & Mfg. Co. of Orlando, Fla., employs circular core motion. Rated capacity per day—2,500 units. (May, 1946)



The "Kissam-Blatt Controlled Oscillator Block Machine," a product of the Kissam Builders' Supply Company, Orlando, Fla., is said to permit the use of very wet mixes without slumping. (July, 1946)



The "Jay-bee" batch mixer, produced by J. B. Hunt & Sons, Inc., Raleigh, N. C. (pictured above) has twin ribbon-type blades. Mixes and empties one batch in 1 minute. (Oct., 1946)

Available in three models is the "Salsbury Turreteer" power truck shown above. It is marketed by the Salsbury Motors, Inc., Pomona, Calif. (Nov., 1946)

TRADE LITERATURE

LIFT TRUCK JOB STUDIES. Towmotor Corporation, 1226 E. 152nd Street, Cleveland 10, O.

BULLETIN NO. 70 ON CLIPPER SUPERIOR BLADES. The Clipper Manufacturing Company, 2800 Warwick, Kansas City 8, Mo.

COMMERCIAL CLOSE CLEARANCE PRESSED STEEL PALLETS. The Commercial Shearing & Stamping Company, Youngstown 1, O.

COMMERCIAL CLOSE CLEARANCE PRESSED STEEL PALLETS FOR MODULAR UNITS. The Commercial Shearing & Stamping Company, Youngstown 1, O.

Will not BREAK, CRACK or WARP

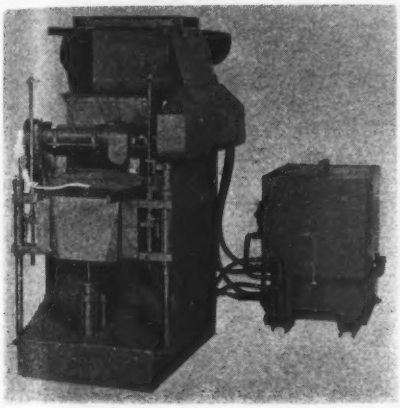
70% of the Vibrators are using Commercial Cored Steel Pallets — and there must be a reason for their use — because there are other kinds, but Commercial Pallets are made to fit the machine. They do not wear out. Many Companies have used the same Commercial Pallets for years, — with no apparent wear. And the cost is reasonable for long time wear — and perfect blocks.

THE COMMERCIAL SHEARING AND STAMPING CO.
YOUNGSTOWN, OHIO

NEW MACHINERY and SUPPLIES

Vibrator Block Machine

The FMC 180 illustrated is a product of the Fleming Manufacturing Co., 4989 Fyler Avenue, St. Louis 9, Mo. It is basically the same machine as the Kirk-



Vibrator and power unit.

ham Vibrator, but incorporates the latest developments and improvements.

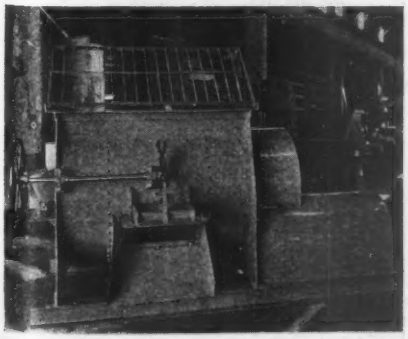
The unit gives consistently uniform results by eliminating errors arising in the human element. It requires only one man to operate the machine. He places the pallet on the mold box, and the machine does the rest automatically. The operator off-bears the finished block and places another pallet.

This machine is equipped with two 1½-hp. motors, wired on independent circuits. The hydraulically-operated power unit is built and mounted separately. The device operates at a fixed speed, which may be varied by resetting, and will produce 120 to 180 standard units per hour.

Concrete Mixer

The "Kelley 30A" has been designed to meet the demand for a simpler, more efficient block products plant mixer. The mixer, of 30-cu.-ft. capacity, is a product of the E. B. Kelley Co., Farmingdale, N. J.

The drum or shell consists of rolled steel plate, welded around its periphery at each end to a steel combination head and standard welded in turn to two H-beams which serve as skids.



Rolled steel plate drum.

The paddle shaft is made of hexagon steel bar, and has four removable arms and shovel blades. It is mounted in two Timken tapered roller bearings. Drumhead and drum liners are made of a long-wearing, abrasion-resistant alloy steel. The shell liners, which are made in strips, are easily replaceable.

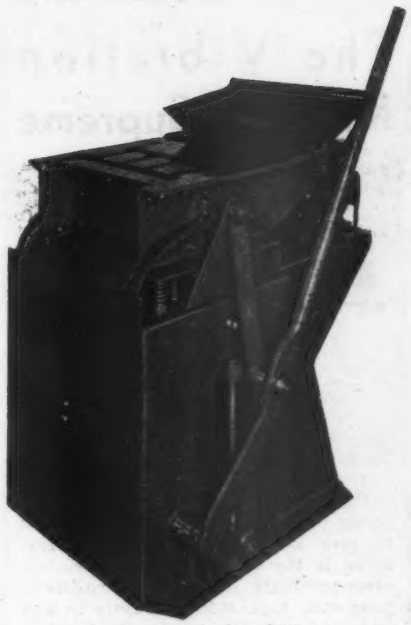
The discharge door, operated by a handwheel, is located on the left side facing the motor. The door is hinged, and is self-locking when closed or open. The unit is powered by a 15-hp. 220-volt, 3-phase motor, and is driven through a spur gear and steel pinion. Motor gears and shaft bearings are inclosed in dust- and safety-guards.

New Block Makers

Two new concrete block machines have been developed by the Magic-Concrete Equipment Co., Box 219, Springfield, Mass. These machines will produce 800-1,000 standard blocks per day, and will make all standard block sizes.

The hopper locking mechanism is mounted on the hopper with a positive cam lock, and can be locked in the forward or rear position. The mold box is entirely spring-mounted, which permits it to vibrate in all directions without vibrating the base of the machine. The timing cycle of vibration is electronically controlled.

The toggle movement of the stripper ejects the block with minimum exertion, and only 45 degrees of lever movement. High manganese steel is used on the mold box, core, and wear strips. All parts, including fastenings, that are under strain or stress are made of heat-treated alloy steel.



Spring-mounted mold box.

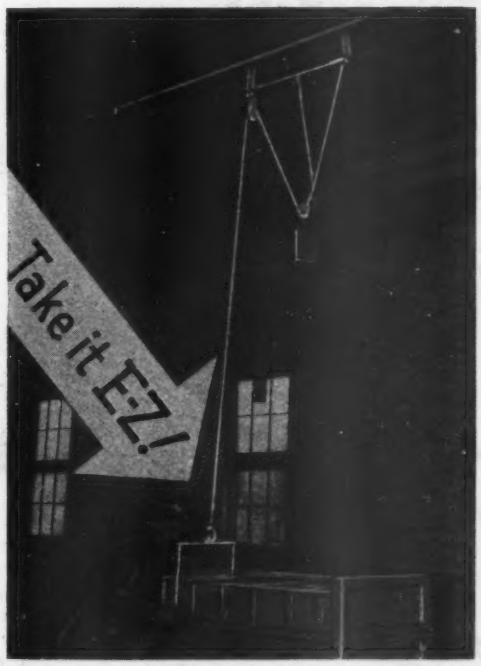
These machines were engineered and designed on a precision basis by J. B. White, who was formerly associated with J. W. Appley and Son, Inc., St. Petersburg, Fla. The machines are available for early delivery.

Announcing **E-Z Lift**

TAKES THE HARD WORK OUT OF LIFTING

Now your off-bearing job can be handled by
Young man or old man
Tall man or short man
David or Goliath

"E-Z Lift" eliminates fatigue, reduces the number of broken and marred blocks, and increases block-handling capacity.
This labor-saving device is inexpensive, and easily installed by two men in ½-hour.
Suitable for any size plant . . . counterbalance adjustable for all positions . . . track can be of any length . . . low operating and upkeep cost.
The "E-Z Lift" can be employed to advantage in plants not using racks, as well as in plants equipped with racks.
You can employ 5-high racks with 25% increased capacity of kilns by use of off-bearer.



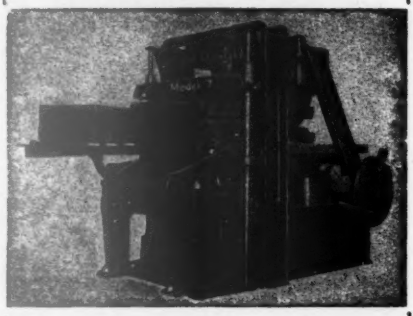
Write for full details

Pat. Pe..d.

J. N. COLE MFG. CO.

CRYSTAL LAKE, ILLINOIS PHONE 678

The Vibration Machine Supreme



Vibration under pressure — 7,200 blows per minute—and ruggedly built to give long life, the Joltcrete machine is the choice of the wise concrete-products operator. Produces clean-cut, high strength units in any size, and gets the most out of a bag of cement. Built in three sizes with capacities of 7 to 9 standard units per minute.

Stearns Clipper Stripper Machines; Stearns Joltcrete Machines; Stearns Mixers; Cast iron and Press Steel pallets. Straublox oscillating Attachments, etc. Repair parts for: Anchor, Stearns, Blystone Mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
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LITTLE DAVE *BRICKMAKER*
LOW COST HAND OPERATED MACHINE

R. S. Reed Corporation
320 EAST HOFFMAN ST.
THREE RIVERS, MICHIGAN

Electric Block Cutter

"Stone-Saws," manufactured by the Stone Machinery Company of Manlius, N. Y., have recently been demonstrated by the makers. The new machine is used to cut concrete units at high speed. According to the company, the Stone-Saw

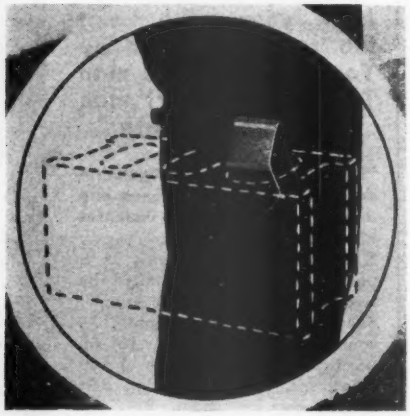
Saws at high speed.

can be used to cut special concrete blocks, gables, flooring units and conduit units and to remove broken sections from damaged block which can be salvaged.

Two stone saws are available. The smaller will cut to a depth of 5½ inches, and uses a 7½ hp., 3150 r.p.m. motor and a 14½-inch cutting wheel. The larger model cuts 6 inches deep with a 10 hp., 2190 r.p.m. motor and an 18-inch cutting wheel, but will take a wheel as large as 22 inches in diameter.

Block Carrier

For men who handle concrete and cinder blocks, a block lifter has been developed by the Michigan Silo Co. of Peoria, Ill. The manufacturer lists the following advantages: the lifter speeds

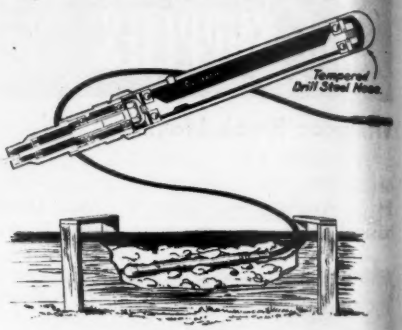


Method of using carrier.

loading and unloading, as one man can handle two blocks at a time; blocks are handled with fewer broken corners and edges; time and money are saved because more blocks can be handled with less exertion; gloves are not necessary; fingers and hands are protected.

Vibrating Device

The "New-Dart," a high-speed vibrator with 25- or 50-foot cables, has been put on the market by the Dart Manufacturing Company, 520 E. Quincy Street, Englewood, Colo. The moisture-proof device is preloaded, noncollapsible and



Operated by 3-h.p. motor.

neoprene-covered. It is also resistant to chemicals, oil and corrosion. Fittings are of heavy brass construction, and New Departure ground ball bearings are used.

The eccentric mechanism operates in an oil bath within the tempered drill-steel nose. A 3-hp. motor is required to operate the vibrator, which may also be operated through a jack shaft from the mixer power plant.

Lee C. Daniles has been appointed chief engineer of Towmotor Corporation, Cleveland, O., manufacturers of fork lift trucks and industrial tractors. Mr. Daniels was formerly associated with The Oliver Corporation, The Cleveland Tractor Company, The Twin Coach Company and White Motor Company.

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